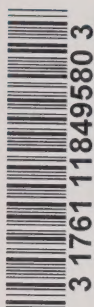


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CANADIAN

COMMISSION

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TRANSPORTS

COMMITTEE

COMITÉ

RAILWAY

PAR CHEMIN DE FER

CASE/CAUSE NO:

VOLUME NO: 5

PLACE/ENDROIT: WINDSOR, ONT.

DATE: DEC. 2/77

OFFICIAL REPORTERS

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CANADIAN TRANSPORT COMMISSION

RAILWAY TRANSPORT COMMITTEE

IN THE MATTER OF an Application of Canadian Pacific Limited dated at Toronto, the 15th day of April, 1977 and captioned as follows:

IN THE MATTER OF The Railway Act, R.S.C. 1956 c.R-2 as amended, Sections 196, 197 and 216, The National Transportation Act, R.S.C. 1970 C.N-17 as amended, Sections 52, 57 and 63 and General Rules of Canadian Transport Commission, Rules 200, 250, 260, 275, 305 and 770;

AND IN THE MATTER OF a pedestrian crossing at Mileage 109.30 of the Windsor Subdivision of Canadian Pacific Limited as shown on Plan and Profile No. G-1-114-A, dated April 14, 1975;

AND IN THE MATTER OF the opening for the carriage of traffic of a portion of the railway between Mileage 108.35 and 109.68 of the said Windsor Subdivision known as the Powell Sidings.

File No. 49787

Hearing held in the Cleary Auditorium,
201 Riverside Drive West, Windsor,
Ontario, Friday, December 2nd, 1977
at 9:30 a.m., Local Time.

BEFORE:

J. T. GRAY, ESQ., Q.C.

CHAIRMAN

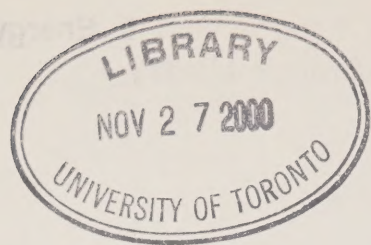
J. M. WOODARD, ESQ.

COMMISSIONER

J. M. McDONOUGH, ESQ.

COMMISSIONER







ANGUS. STONEHOUSE & CO. LTD.
TORONTO, ONTARIO

APPEARANCES:

N. A. CHALMERS, ESQ., Q.C.) Counsel for Canadian
CAMERON HILLMER, ESQ.) Pacific Limited

MS. DEANA SILVERSTONE Commission Counsel

B. J. MacDONALD - Hearing Process Officer

- - - - -

VOLUME 5

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Per: M. J. Cornell, C.S.R.
N. Graham, C.S.R.
P. Cornell



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1 --- Upon commencing at 9:30 a.m.

2 THE CHAIRMAN: Good morning, please
3 be seated. I'm sorry, go ahead.

4 MR. CHALMERS: May it please the
5 Commission, before we commence, before you commence
6 we find that our reading over the transcript of Mr.
7 Nutkins, particularly, and the description of the
8 Windsor yard boundary the day before yesterday,
9 perhaps because of the peculiar angle of our own map,
10 Mr. Nutkins has said "North" when he obviously, from
11 the context, should have said "South" on a couple of
12 occasions. That's not the type of error for which
13 the Reporter has any responsibility whatsoever. And
14 I do not think, while the Reporter has kindly offered
15 to prepare an errata sheet very kindly, I think that
16 would be wrong in the circumstances of this case.

17 Can we write the Commission pointing
18 out these apparent errors? Or should we let the
19 context speak for itself, and if the persons who have
20 withdrawn are replaced by other counsel or something
21 like that and seek to make something of this it would
22 just be my problem to deal with it, I will accept
23 that. But if I can produce an errata letter I --

24 THE CHAIRMAN: I would suggest, Mr.
25 Chalmers, that you produce an errata letter and send
26 copies to counsel and --



1 MR. CHALMERS: To former counsel?

2 THE CHAIRMAN: To former counsel and
3 other people of record.

4 MR. CHALMERS: And the other persons
5 of record on the list.

6 THE CHAIRMAN: Yes.

7 MR. CHALMERS: Very good, sir.

8 THE CHAIRMAN: Because they will be
9 referring to the transcript during the period of the
10 adjournment. And it is only right that they should
11 have available to them any suggested changes.

12 MR. CHALMERS: Yes, they have every
13 right to retain replacement counsel.

14 THE CHAIRMAN: Yes.

15 MR. CHALMERS: They may need this for
16 instructing such counsel.

17 THE CHAIRMAN: That is right.

18 MR. CHALMERS: I would call, if I may,
19 Mr. Edward O. LaFontaine.

20 EDWARD O. LaFONTAINE, Sworn

21 THE WITNESS: Edward Omar LaFontaine,
22 L-a-F-o-n-t-a-i-n-e. 3260 Devon Drive, Windsor.

23 DIRECT EXAMINATION BY MR. CHALMERS:

24 Q. Mr. LaFontaine, are you a
25 professional engineer?

26 A. Yes.

27
28
29
30



1 Q. And you practice with a
2 consulting firm here in Windsor?

3 A. Yes.

4 Q. And that's LaFontaine, Cowie,
5 Buratto?

6 A. Yes.

7 Q. And Associates Limited, excuse
8 me.

9 A. That is correct.

10 Q. And you have been a
11 professional engineer since when?

12 A. I have been a professional
13 engineer for 25 years.

14 Q. And you have a Degree in
15 Engineering from the University of Toronto acquired
16 in 1950. Is that correct?

17 A. That's correct.

18 Q. And you have a -- what Degree
19 is that?

20 A. I have a Bachelor of Applied
21 Science in Civil Engineering.

22 Q. And did you get a Masters
23 Degree much later at some other date?

24 A. Yes, in 1965 I obtained my
25 Master of Applied Science Degree in Civil Engineering
26 from the University of Windsor.



1 Q. And your first position as an
2 engineer was with Quebec North Shore?

3 A. I worked with a company called
4 Cartier, MacNamara, Mannix, Morrison, Knudsen,
5 K-n-u-d-s-e-n, a consortium building the Quebec
6 North Shore and Labrador Railroad from Seven Islands,
7 Quebec to Knob Lake in Labrador.

9 Q. And how long were you with
10 them?

11 A. One and a half years.

12 Q. And then you were with, I
13 believe, the Township of Atikokan?

14 A. I neglected to tell you in
15 our conversation that I had another job.

17 Q. Tell the Commission, that's
18 what matters.

19 A. I worked on the construction
20 of the Pine Tree Radar Project in Newfoundland and
21 Labrador for a company called Fraser Brace Terminal
22 Constructors.

24 Q. Did you then go to the
25 Township of Atikokan?

26 A. And then I went to the
27 Township of Atikokan as Township Engineer for two
28 years.

29 Q. What year are we up to by now?
30



1 A. 1955.

2 Q. Did you then go into business
3 for yourself as a consulting engineer in Windsor?

4 A. Yes, I joined the firm at that
5 time known as C. G. Russell Armstrong Associates
6 Limited. I became Vice President, I forget, in 1960
7 more or less. And in 1970 my colleagues and myself
8 purchased the engineering assets of Russell Armstrong
9 and my other partner Maurice Armstrong. And we have
10 operated since that time as LaFontaine, Cowie,
11 Buratto and Associates Limited.

12 Q. And spread out behind you are
13 copies of, among other things there is a total of
14 eight sheets of paper spread out behind you. They
15 appear to be various sheets of Exhibit CP-A and two
16 sheets as yet unmarked.

17 MR. CHALMERS: Mr. Chairman, there
18 are no -- we have this CP-A which before being marked was
19 actually furnished to counsel who have withdrawn.
20 For once we have lots of copies I am assured. And if
21 those sets could be furnished to the two ladies
22 present in the audience, they are both on the list.
23 For things like this we might like to take them off
24 the list and not have them delivered as well.

25 Q. Now at the request of Canadian
26 Pacific, have you prepared certain plans for alternative
27
28
29
30



1 methods of carrying the railway or carrying the
2 Parent Avenue pedestrian crossing over, or alterna-
3 tively under the Canadian Pacific trackage on the
4 assumption that there will be in use three tracks,
5 the main line and the two siding tracks known as
6 the Powell Sidings?

7
8 A. Yes. In 1975, in the summer
9 of 1975, my firm was authorized by CP Rail to prepare
10 alternative designs for a pedestrian crossing of CP
11 Rail at Parent Avenue in the City of Windsor.

12 Q. Yes -- go ahead.

13
14 A. We were asked to, at that time,
15 find the most economical and reasonable solution for
16 the construction of a pedestrian crossing of CP Rail
17 which would provide for the safety and security of
18 the pedestrians, conform to all of the accepted
19 building and other codes that would relate to the
20 construction, and would cause the least amount of
21 inconvenience to all concerned; and lastly at the
22 most reasonable and economical cost possible.

23
24 We did this and our solution involved
25 the construction of three, or we presented three
26 alternatives, two alternatives for pedestrian under-
27 passes, one which involved a grade raise of the
28 Railway's tracks; and a third alternative which
29 involved a pedestrian overpass.
30



1 In each case our solution involved
2 the encroachment on lands in the City of Windsor on
3 their park, at the north side of CP Rail's right-of-
4 way.

5 Subsequently at a hearing held before
6 the Committee we came to the understanding that the
7 City objected to the encroachment on its parkland.
8 In preparation for this hearing CP Rail instructed
9 our firm again to develop alternative proposals for
10 a pedestrian crossing at Parent Avenue; but with the
11 constraint that we were to confine the construction
12 to the limits of the right-of-way of CP Rail.
13

14 As a consequence we developed
15 proposals shown on Exhibit CP-A(A1), CP-A(A2) which
16 is a drawing of two sheets showing the proposed
17 pedestrian overpass. All the construction was
18 confined to the limits of CP Rail with the exception
19 of the entrance ramps on either the north or south
20 ends. Drawings CP-A(B1) and CP-A(B2) show --
21

22 Q. That mike can be detached if
23 you wish to wander with the mike. This establishment
24 is apparently used by singers who do that.
25

26 A. The drawings CP-A(B1) and
27 CP-A(B2), there are two sheets showing the proposed
28 construction of an underpass without any revision to
29 the grading of CP Rail, confining the construction to
30



1 the limits of the right-of-way and admitting that a
2 grading pumping system would be required to drain
3 the underpass and water which would drain into it.

4 Drawings CP-A(C1) and CP-A(C2), two
5 sheets which show the proposed pedestrian underpass.
6

7 Q. Excuse me.

8 MR. CHALMERS: Sir, is Mr. LaFontaine
9 going through his evidence too quickly?

10 THE CHAIRMAN: Yes, we are lost with
11 these plans at the moment.

12 MR. CHALMERS: I wonder if the
13 witness will excuse me if I could take you back to
14 your overpass (A1). The (A1) and (A2) are taken
15 from the labelling, I believe, of the plans by Mr.
16 LaFontaine. Is that correct? You have labelled
17 them, where we have said (A2) you have labelled your
18 plans with an A, for example, (A2) is labelled in
19 the lower right hand corner with an A and sheet
20 number 2. That becomes in our -- we had the temerity,
21 and please excuse me, we have taken Mr. LaFontaine's
22 drawing number A, sheet number 2 and made that ---
23
24
25
26
27
28
29
30

-- -- --



3-1

MJCeg

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We have taken Mr. LaFontaine's drawing No. A, Sheet No. 2 and made that, subject to the approval of the Committee CP-A-(A2).

COMMISSIONER WOODARD: I think you are going too fast now, Mr. Chalmers.

MR. CHALMERS: I'm sorry.

COMMISSIONER WOODARD: We have got as far as A-2. What is the next plan after that one?

MR. CHALMERS: Well A-1 should have come first.

COMMISSIONER WOODARD: We have that.

THE CHAIRMAN: We have that one.

MR. CHALMERS: I wonder if I could just start with the witness at A-1 and A-2 and go back to that.

Q. A-1 and A-2 appears to be an overpass, is that right?

A. That's correct.

Q. And it is entirely within the boundaries of the CPR right-of-way, is that right?

A. Yes.

Q. And I see that it is signed by J. Smeeton, OLS, Ontario -- which usually stands for Ontario Land Surveyor. Was he retained by you?

A. Yes.



BB-2 1 Q. And what you are referring
2 to on Sheet A-2 is -- there are four little black
3 squares defined as FD standing for Found SIB,
4 standing for Standard Iron Bar, No. 1194 by J.
5 Smeeton, Ontario Land Surveyor. OLS.

6 COMMISSIONER WOODARD: Well, where
7 is that signature on A-2?
8

9 MR. CHALMERS: Q. Did Mr. Smeeton
10 sign the drawings?

11 A. No. These bars were
12 planted by Mr. Smeeton on our instructions to define
13 the limits of the right-of-way in the location of
14 the proposed works.
15

16 They were subsequently found by
17 our staff and located on the ground and on the
18 drawings and they are shown on the drawings as I am
19 indicating them at four points on Sheet A-2.

20 They indicate, if you examine them
21 closely, that on the south side of the right-of-way
22 the bars are very close to the vents which is almost
23 coincident to the south limit.
24

25 COMMISSIONER WOODARD: We have got
26 that one.

27 THE WITNESS: On the north side of
28 the right-of-way the bars are shown on the north --
29 they are shown on the limits and north of the
30



BB-3

1 existing fence. In other words, the north fence that
2 now exists being on the right-of-way is about two feet
3 south of what the Land Surveyor says should be the
4 north limit of the right-of-way.

5 Q. What your staff says the
6 Land Surveyor says. As the Chairman has pointed out
7 Mr. Smeeton, for better or worse, didn't sign?

8 A. That's correct.

9 Q. Now I have led you astray
10 already. At the north side ---

11 A. You are pointing to the
12 south side.

13 Q. At the south side of the
14 crossing the walkway appears - the ramp appears to go
15 onto Parent Avenue, is that right?

16 A. That's correct.

17 Q. And it is your
18 understanding that is a public highway at that point
19 or do you know?

20 A. I know that there is a
21 right-of-way of Parent Avenue shown on a registered
22 plan registered in the Registry Office for the County
23 of Essex. I don't believe that the street has been
24 closed.

25 Q. I am not really asking
26 for a legal opinion. That is your impression. You
27
28
29
30



-4
1 have assumed that there is a right-of-way leading
2 right up to the property on the south side and the
3 ramp may be built as an extension of Parent Avenue
4 and you have assumed without authority from the
5 Commission and you can't do that on the north side
6 and therefore the ramp is crooked, is that correct?
7

8 A. Yes. I might add that on
9 the south side there is an existing walkway to
10 which we propose to connect the entrance to any
11 structure and this small length of what I call
12 hatchings or shadings purport to indicate new
13 construction which would join at the end of the
14 hatchings with the existing ramp which is already
15 there. It is just a ramp or walkway which is
16 already there.
17

18 Q. Yes, and I see there is
19 something marked "existing walkway" presumably in
20 Optimist Park to which your ramp on the other side,
21 on the north side would presumably lead. Is that
22 right or if I am wrong please correct me.
23

24 A. No. That is correct.

25 Q. All right. Now referring
26 to the plan at the top of CP-A -- what we are
27 calling CP-A-(A2), Sheet A2, below it is a plan.
28 Is this a cross-section so to speak of your
29 overpass?
30



5
1 A. Yes. On what we call
2 drawing A-2, (A2). On the lower half of the
3 drawing there is a profile across the railway tracks,
4 along the centre line of the proposed pedestrian
5 crossing.

6
7 The left hand side of the profile
8 is the north side at Optimist Park. At the right
9 hand side of the profile is the south side heading
10 into Parent Avenue.

11 The profile shows in elevation the
12 proposed pedestrian crossing which takes the form
13 of a steel structure which arises above grade so
14 that the bridge across the tracks would have a
15 clearance of 23 feet above the top rail of the
16 main line of CP Rail.

17
18 The elevation up to the bridge is
19 achieved or the rise is achieved by a series of
20 switch back ramps ---

21 MR. CHALMERS: Excuse me. I did
22 provide you, sir, at least I thought one for each
23 Commissioner with respect but we could certainly
24 make another one available.

25
26 THE CHAIRMAN: Don't worry about it.
27 If we have more than one we won't have room for it.

28 MR. CHALMERS: Well my friend, Mr.
29 Hillmer, was suggesting that you might be having
30



-6 1 some difficulty.

2 THE CHAIRMAN: No.

3 THE WITNESS: As I was saying, in
4 order for a pedestrian to reach the elevation of the
5 bridge some 23 feet above the tracks from the
6 existing level of the walkways on either side of the
7 railway it is necessary for him to walk up a
8 series of switch back ramps which rise at the rate
9 of 10%.

11 The switch back ramps are shown on
12 Sheet A1 in a little detail on the lower right hand
13 side of that drawing which says "Elevation of Ramps,
14 scaled 1 inch equals 10%".

16 Q. And what is the grade of
17 those ramps?

18 A. These ramps are proposed
19 at a grade of 1 foot vertical to 10 feet horizontal
20 or 10%.

21 MR. CHALMERS: And my letter
22 directed to the Commission shortly before this
23 hearing, with copies to counsel since withdrawn,
24 Canadian Pacific has asked permission under the
25 appropriate provision of the Railway Act for a
26 grade other than one in five.
27

28 There is a provision for an
29 exception as you know, sir.
30



BB-7

1

Q. Is it possible to build

2

this structure with a grade one in five for the

3

ramps?

4

A. Well it's possible but not

5

necessary and not in fact the normal practice.

6

7

A 5% grade I would construe to mean

8

the grade that relates to automobile crossings of

9

railways and this is a pedestrian crossing rising

10

parallel to the tracks conforming with the

11

requirements of the National Building Code and the

12

Ontario Building Code.

13

The ramps have --

14

15

Q. Does that grade conform

16

with those requirements?

17

A. The grade conforms with

18

those requirements. The ramps would also have

19

landings. You may notice these little flat spaces

20

in the ramps, one on either end and one in the

21

middle, and those landings are also a requirement

22

of the Codes in order to accommodate handicapped

23

persons in wheelchairs. The idea being that

24

25

certain horizontal distances should not be

26

traversed by handicapped persons without a landing

27

being available for a rest or to stop the

28

wheelchair if it is out of control so in all

29

respects, insofar as I am aware, this design

30



B-8

1 conforms with all of the normal Building Code
2 requirements to grades, landings and so forth in
3 order to raise the pedestrian from the level of the
4 walkway on either side up to the level of the bridge
5 some 23 feet above the tracks.
6

7 Q. And how is the walkway
8 enclosed if at all?

9 A. We are proposed to
10 enclose all of the walkway ramps and the bridge with
11 steel chain mesh fence, galvanized chain link fence
12 very similar and in fact identical to the kinds of
13 chain link fence that you have probably seen around
14 school yards and transformer structures and that sort
15 of thing.
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30



B-1

PCeg

1 A. All of the sides and
2 roof, in fact, the complete structure would be
3 fully enclosed with a chain link fence up to a
4 point 28 feet from the north end of the bridge
5 where it meets the ramp as shown on drawing A-2.
6

7 At that point, a steel roof deck
8 would be used in lieu of chain link fencing over top
9 of the bridge and the ramps themselves on the north
10 side would have steel roof decking on top of them
11 and down the sides of them, down to the first
12 walkway level shown, as I am indicating here, and
13 indicated by the wording "Steel Siding" on the left
14 hand side of the profile drawing on the lower half
15 of the sheet A-2.
16

17 Q. Why the solid sheeting?

18 A. Our purpose in doing that
19 was to overcome any possibility of anyone foolishly
20 trying to poke sticks or other types of objects
21 through the screening toward the high tension wires
22 of the Ontario Hydro transmission line which, in
23 fact, are over ---
24

25 Q. Well, which side of the
26 track again are they? I know it is in evidence but
27 please refresh our memory as to which side of the
28 track the hydro wires are?
29

30 A. They are on the north side



LaFontaine, dr.ex.
(Chalmers)

B-2 1 of the track.

2
3 Q. Well, just before we go
4 on with the evidence, these are the hydro wires --
5 well, these are high tension wires of considerable
6 kilovolt, voltage. kilo voltage?

7 A. Yes. My information is
8 they have a voltage of 110,000 volts, phase to
9 phase.

10 Q. A witness from Ontario
11 Hydro will be next, almost next.

12
13 But, are there other wires - are
14 there other current carrying wires around the
15 crossing as well?

16 A. Yes. North of and
17 parallel with the Ontario transmission line is a
18 line owned by the Windsor Utility Commission which
19 is indicated as a vertical line on the left side of
20 the profile shown on Sheet A-2 and it is indicated
21 as the centre line W.U.C. hydro line (10 cables).

22
23 Q. What are the little dots
24 around that?

25 A. The little dots purport
26 to be the exact location of each wire in that
27 cluster owned by the Windsor Utility Commission.

28
29 Q. Who measured and located
30 their position?



B-3

1 A. Our staff measured and
2 located the position of the wires as well as the
3 elevation of the highest and lowest wires in that
4 group.

5 Q. Which is expressed in
6 kilos or they are measured in feet, are they?
7

8 A. Yes. These are measurements
9 in feet above sea level in accordance with the
10 Canadian Geodetic Datum.

11 Q. The squares are measured
12 off in what?
13

14 A. The squares on the drawing,
15 the grade of squares are 10 foot intervals
16 vertically and 10 foot intervals horizontally.

17 Q. What are the figures ?

18 A. They are elevations above
19 sea level.

20 Q. Now, before we get back
21 to the hydro lines, is there another power line or
22 similar structure in the vicinity of the Parent
23 Avenue crossing?
24

25 A. On the south side of the
26 railway right-of-way, there is a series of
27 communication cables and telegraph lines, I call
28 them, and Bell Canada cables.
29

30 Q. Have you any instructions



B-4

1 from Canadian Pacific about what is going to happen
2 to them?

3 A. Yes. Our instructions
4 were to provide for the removal of those lines by
5 either attaching them to the structure or by burying
6 the plant under ground.

7 Q. And which have you shown?

8 A. In this I do not believe
9 that we have shown in at all on this drawing.

10 We have left the matter open. At
11 the moment we are considering burying the facilities.

12 Q. Right. And there is a
13 dot mark EL.Bell Cable, 631.98 (to be located)?

14 A. That means the elevation,
15 the elevation of Bell cable 631.98 is to be
16 relocated by burying into a conduit.

17 Q. To get back to the Ontario
18 transmission wires, there is a vertical line --
19 well, how are the Ontario Hydro transmission wires
20 shown on this plan?

21 A. The centre line of the
22 tower line, transmission line, is shown by a
23 vertical line which is identified as CL. Ontario
24 Hydro Transmission Towers.

25 Q. By the way, is there a
26 transmission tower in that line right at Parent
27
28
29
30



B-5 1 Avenue crossing?

2 A. No. There are two towers,
3 one on either side and the crossing is approximately
4 in the middle mid span of that pair of towers.

5 Q. I am sorry, you were
6 showing?

7 A. This tower line, this
8 centre line is approximately over the ramp that
9 would be closest to the railway tracks.

10 Above the bridge are shown two
11 black dots approximately 10 feet thereabouts on
12 either side of the centre line and the one dot is
13 identified as EL., meaning elevation, lowest lines
14 at 665.0 under maximum load and climatic conditions.

15 That is not our information. That
16 is information supplied by Ontario Hydro.

17 Q. 665 under maximum load and
18 climatic conditions, you said?

19 A. Yes.

20 Q. And as I have told the
21 Commission, there will be a witness almost
22 immediately from Ontario Hydro.

23 Is there anything in this design
24 in relation to -- first of all, in lighting of the
25 structure, the overpass structure?

26 A. Yes. As I indicated part
27
28
29
30



1 of our terms of reference involve trying to provide
2 the safest and the most secure means of crossing
3 the railway for pedestrians.
4

5 The structural safety of a bridge
6 is assured as far as we are concerned by normal
7 good engineering practice.

8 The safety of the pedestrian
9 is further ensured by the enclosure of the structure
10 with the steel mesh fencing on all sides and a
11 further enclosure by steel decking and the siding
12 where the structure is near hydro lines, the structure
13 is further protected by a device which prevents or
14 at least discourages any foolhardy person from
15 climbing the structure and this is done by providing
16 a barbed wire lookout which is an arm which projects
17 off the structure with barbed wire strands all
18 around the structure at a height of 8 feet above
19 grade to discourage or at least try to inhibit
20 climbers and lastly, this structure is fully lighted.
21 The interior roof sections have vandal-proof lights
22 and on the exterior grade ramps and, in fact, the
23 whole outer area is lighted by tower floodlights.
24

25 Q. And the lowest line is
26 665 feet above sea level and the elevation of the
27 top of the bridge is marked elevation 652.98.
28

29 Those are your plans and measurements,
30



1 are they?

2 A. Yes.

3 Q. What is the difference
4 between that? Is the clearance between the lines
5 something other than that -- assuming that the Hydro
6 will confirm this figure and information to you
7 that the elevation of the lowest line is under
8 maximum load and climatic conditions.

9 Can you tell us what that means?

10 Is the clearance a matter of subtraction or is there
11 something else to be subtracted. You have a few
12 wiggly lines at the top.

13 A. No. The wiggly lines
14 referred to, they are how the roof deck, the steel
15 roof deck is shown in cross-section. The top of
16 the bridge as indicated would mean the top of the
17 steel member that supports that roof deck. So I
18 venture to say that the very top of the steel
19 decking would be approximately $2\frac{1}{2}$ inches higher than
20 that or would make the absolute top of the bridge
21 approximately 652.2 instead of 6 --- pardon me, 653.2
22 instead of 652.98.

23 So there is a slight
24 subtraction to be made when considering that.

25 Q. I am sorry. Could you
26 repeat?



B-8

1 A. The revised figure -- the
2 very top of the steel decking which is shown by
3 the wiggly line as indicated would be at an
4 elevation of approximately 653.20. I am making an
5 assumption as to the kind that would be used but
6 it would be reasonable to add about a 2½ inch thick
7 steel deck.
8

9 Q. That is a sufficient
10 description of a deck?

11 A. Yes.

12 Q. Okay, and is there anything
13 else that you would like to slowly and carefully
14 tell the Commission about your predicted overpass?
15

16 A. Well, except we feel we
17 have provided more than adequate clearances from
18 any of the hydro lines or above the rails we have
19 tried to contact any agency that regulates
20 clearances and to abide by regulations or
21 recommendations.
22

23 Q. In what respect?
24

25 - - -
26
27
28
29
30



1 Q. What agencies have you
2 contacted?

3 A. Well CP Rail gave us the
4 information with respect to the clearances required.
5 And this I would further submit was in accordance
6 with the Railway Transport Committee requirements.
7 And Ontario Hydro gave us the clearances required
8 for the, or rather gave us the information about
9 the lowest elevation of the lowest high voltage
10 wire.
11

12 We used the CSA Code relating to
13 clearances of wires and we confirmed with Ontario
14 Hydro that our interpretation of that Code was
15 consistent with theirs. Lastly we --

16 Q. Before you leave the CSA
17 Code, do you claim any particular expertise in
18 relation to the CSA Code for wire clearances?
19

20 A. No, I do not.

21 Q. Thank you.

22 COMMISSIONER WOODARD: Mr. Chalmers,
23 just before you go any further. I think you
24 asked the witness a question as to the difference
25 in height between the top deck of the overpass and
26 the bottom of the hydro wire. Didn't you?
27

28 MR. CHALMERS: The wire was stated
29 to be the position of -- the lowest line was
30



1 stated to be its position under maximum load and
2 climatic conditions which the witness says he got
3 from Ontario Hydro.

4 COMMISSIONER WOODARD: I do not
5 think that he has given us that difference yet.

6 MR. CHALMERS: Q. Could you perform
7 the subtraction please?
8

9 A. The numbers, elevation
10 665 minus elevation 653 or approximately 12 feet
11 would be the clearance between the lowest wire and
12 the top of the bridge structure. The clearance
13 from the lowest wire and the deck or the surface of
14 the walkway switch which we understand as the
15 most critical one is 665 minus approximately 644 or
16 about 21 feet.
17

18 Q. Yes. Mr. Bellows of
19 Ontario Hydro I anticipate would take you through
20 the CSA requirement in relation both to the bottom
21 wire and the maximum sag and the top of the
22 structure, the bottom wire under maximum sag and
23 the walkway that people are actually walking on
24 and explain why that walkway is important as well
25 as what your line might think is important, the
26 actual top of the structure, unless this witness
27 can take you further on that.
28

29 I would remind the Commission, in
30



1 the arithmetic, to bear in mind that in all
2 fairness the witness has said there should be some
3 another short amount of height taken off for the
4 sort of lid put on part of the ultimate roof to
5 meet the contention about people poking hockey
6 sticks through the top.

8 And I think you have said, have you
9 Mr. LaFontaine, complied with the Ontario and
10 Canadian Standards?

11 A. We have complied with the
12 Ontario and National Building Codes.

14 Q. And did you prepare an
15 estimate of the cost of this structure at the
16 request of Canadian Pacific?

17 A. Yes.

18 Q. And what's the nature of
19 this estimate? Is it a sort of estimate you make
20 after doing detailed construction drawings or
21 what sort of estimate is it?

23 A. I would regard it as a
24 preliminary estimate.

25 Q. I am showing you a piece
26 of paper in two sheets, pages 1 and 2, headed
27 CP Rail Powell Siding and Pedestrian Overpass,
28 Mileage 109.3, Windsor Subdivision. And on the
29 paper of your firm dated at Windsor 1977 -11-25;
30



1 the 25th of November, 1977. And it shows the
2 total cost broken down in various ways, \$226,000.

3 And for once Mr. Chairman, I have
4 sufficient copies, I have three copies for the
5 individual members and one I would tender as
6 Exhibit CP-I.

7
8 I wonder if we -- unless there is
9 anything that you feel requires -- I would submit
10 this document spoke for itself, sir, but if the
11 witness feels that there is anything that he wishes
12 to point out about the estimate of cost of the
13 overpass in the total amount of almost a quarter of
14 a million dollars --

15
16 A. The only comment I would
17 make is that all the figures are my own or my
18 company's with the exception of Section D,
19 relocation of telecommunications and signal lines
20 which are estimates provided to us by CP Rail for
21 that work.

22
23 Q. That's approximately 10%
24 of the total.

25 Then if I may take you to B-1 and
26 B-2, which seem to show an underpass, unless the
27 Commissioners have anything more on the overpass,
28 onto the underpass which apparently requires
29 drainage piping, what's shown on Sheets B-1 and B-2
30



1 of CP-A.

2 A . For the Committee's
3 benefit this is our drawing LB-889B, Sheets 1 and 2.

4 Sheet 1 is a sump line which shows
5 the railway right-of-way for the space of
6 approximately 3,000 or 4,000 feet. The top part of
7 the sheet is the plan, the lower part is the
8 profile. Of the elevation of the main track, which
9 is given as a dotted line on that profile, the
10 profile is a grid of squares, one inch squares, one
11 inch horizontal being equal to 100 feet, one inch
12 vertical being equal to 10 feet, what we call a
13 distorted scale.
14

15 On the plan is shown the location
16 of the proposed underpass of CP Rail, if that is
17 the eventual solution. All of the construction
18 being confined within the limits of the right-of-way
19 of CP Rail with the single exception of the exit
20 onto Parent Avenue where a small amount of earth
21 construction in open cut would be necessary to bring
22 the excess from the existing grade of the present
23 walkway down to the lower level of the walkway
24 where it would cross under the railway tracks.
25

26 The crossing is proposed at 90
27 degrees to the railway track and as a result
28 requires a pathway on the north side to bring the
29
30



1 pedestrians from the point where it would emerge
2 from the underpass back to meet the existing walk
3 on the City's Park on the north side.

4 Q. Have you given the full
5 explanation of this, the snake-like structure
6 underneath?

7 A. I will do that. Commencing
8 at the south side of the proposed construction on
9 Parent Avenue the upper part of the sheet B-2
10 shows a plan. On the right hand side of the plan
11 there is a walkway shown in kind of a chicken
12 scratching kind of hatching which indicates a
13 concrete sidewalk which would descend to the level
14 of the proposed underpass. Below that plan is a
15 profile which shows directly below the various
16 configurations of the sidewalk proposed to be
17 constructed on a 10% maximum slope with landings
18 at intervals to provide safety to handicapped
19 persons. And this walkway would descend to the
20 bottom or the floor level of the proposed underpass
21 which is shown as elevation 608.26.
22
23
24

25 The underpass structure would have
26 an interior width of 6 feet and an interior height
27 of 8 feet. It would be a concrete box-like tunnel
28 crossing under the tracks of the CP Rail. It
29 would have concrete head walls on either side to
30



1 retain the earth and fill of the railway.

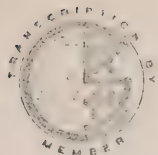
2 As you can see the south side is
3 more or less a direct entry extending down to the
4 level of the pedestrian tunnel.

5 On the north side, because of the
6 constraint imposed by the condition of not being
7 able to trespass on city lines, it would be
8 necessary for the designers to immediately create
9 a ramp, a switch back ramp system somewhat like the
10 switch back system we had for the elevated
11 structure or the cross-over. This switch back
12 system would bring the pedestrian upwards in grades
13 not exceeding 10% with the same type of landings
14 and so forth. So that two of these switch backs
15 are required to get the pedestrian up to the level
16 of grade where he could walk out on new sidewalk
17 which would deliver him to the north side of the
18 railway at a point where it meets the present
19 walkway.
20
21
22

23 Q. And what did you do about
24 lighting both inside or outside or both?

25 A. The structure would be
26 fully lit inside by surface mount and vandal-proof
27 lights on the interior. The exterior would be
28 fully lit by pole mounted or tower floodlights.
29

30 One problem again with this thing,



1 it is not proposed in this alternative to devise
2 the grade of the railway.

3 Q. Thank you.

4 A. As a result it is necessary
5 because there is no natural gravity drainage outlet
6 of sufficient depth. It is necessary to construct
7 a small sump pump and to pump whatever water would
8 fall within the ramp areas of the underpass to an
9 existing city sewer on the corner of Parent Avenue
10 and South Pacific Avenue, a distance of about 150
11 feet. The details are a rough indication, the
12 arrangement is given as an isometric detail on the
13 upper right hand corner of drawing B-2.
14
15

16 Q. Now what would be the power
17 of the sump pump?

18 A. It would be minimal.

19 Q. Where would it come from?

20 A. It would have to come from
21 the power supply that would light the lights. The
22 electrical service necessary for the lights would
23 also be the service that would give power to the
24 sump pump.
25

26 Q. I take it that if the pump
27 was not working the lights would not be on?

28 A. Not necessarily.

29 Q. Are you familiar with the
30



1 Optomist Park area?

2 A. Yes.

3 Q. Would would be the effect
4 of the lightin that you have shown on this drawing --
5 have you crossed Optomistic,walkedacross Optomistic
6 Park at night?

7 A. No, not at night, I have
8 walked across in the daytime.

9 Q. I see. You cannot assist
10 the Commissioner as to the relative lighting that
11 you have shown here for lighting the park?

12 A. I do not believe that they
13 have any lighting in this area. I do not recall
14 seeing any lighting poles or towers.

15 Q. I see. Have you any
16 idea as to what the effect of what you have
17 designed would be at night as you walk across,
18 looking across Optomist Park or walking across
19 Optomist Park? I realize you are speculating,
20 you have not walked across at night.

21 A. I do not recall seeing any
22 lights provided on the park.

23 Q. If you are right on that
24 what's going to be the effect of the structure on
25 Optomist Park?

26 A. I do not follow your
27
28
29
30



1 question. Simply that there is going to be some
2 illumination given to a portion of the walkway
3 that is existing there now.

4 Q. Now I take it you have
5 prepared -- I have in my hand something which
6 appears to be the estimated cost for this structure.
7 And the total amount on two pages -- oh I see, this
8 covers both Alternate 1 and Alternate 2, so I will
9 hold it until we get to Alternate 2.

10 Is there anything else that you
11 wish to tell the Commission about Alternate 1 shown
12 on Sheet B-1 and B-2 of CP-A?

13 A. Not that I can think of.

14 Q. On Sheets C-1 and C-2 you
15 have shown something called - proposed pedestrian
16 underpass. And it appears the plans show a raise
17 in the grade and there is detail of drainage
18 piping but there is nothing shown under the heading
19 "Sump Pump". And the snake-like portion of the
20 structure appears to be somewhat shorter.

21 Is that an accurate description of
22 the Alternative 2?

23 A. Yes.

24 Q. Are there any other
25 differences between the Alternate 2 shown on C-1
26 and C-2 and Alternate 1 on B-1 and B-2? You have
27
28
29
30



1 raised the track by how much?

2 A. About 3 feet.

3 Q. About 3 feet. And have
4 you cut out a pump?

5 A. Yes.

6 Q. And why is the ramp, the
7 at
8 ramps that are/right angles shorter?

9 A. Because there is a 3 feet
10 less grade difference to be overcome with the
11 result that that's 30 feet less ramp.
12

13 Document headed -
14 ---EXHIBIT NO. CP-I: CP Rail Siding and
15 Pedestrian Overpass,
16 Mileage 109.3, Windsor
17 Subdivision, dated
18 at Windsor 1977-11-25.
19
20
21
22
23
24
25
26
27
28
29
30



.1
JC/ko

1 ... with the result that that is 30 feet less ramp
2 to be constructed, so the purpose of the exercise in
3 considering the grade raise of railway tracks was
4 firstly to overcome the gravity drainage problem.
5 In other words, eliminate the sump pump and thereby
6 cut out the mechanical device which might fail and,
7 secondly, to reduce the amount of vertical grade
8 difference which translates into additional walkway
9 length for the pedestrian.
10

11 Q. And had you, on the profile
12 at the bottom of sheet 1 of CP-A(C) -- you appear
13 to have shown the change in the main line track
14 running from 30+00 on your profile back to 6+00,
15 a grade of .4%. Is that right? Am I reading it
16 correctly?
17

18 A. Not exactly.

19 Q. Well correct me, please.

20 A. The profile of the proposed
21 grade revision shown on the bottom of page (C-1),
22 as we identify it, shows firstly the grade raise,
23 the total grade raise over the proposed underpass.
24 Then it also shows, in a solid line, the new
25 elevation of the tracks if the grade is raised and
26 it extends from station 2+ -- pardon me -- station
27 1+50. There is no 1 shown but at +50 on the left
28 hand side of the page immediately in front of number
29
30



2
1 2+00. The grade revision is started at that point
2 because of constraints and design parameters that
3 good rail engineering requires would have to extend
4 all the way eastward to almost the very right hand
5 side of the page where it would end at what I would
6 call chainage 35+20. Again the 35 is missing. The
7 the +20 is shown immediately in front of the number
8 36+00 so it requires about 3,000 feet of grade
9 revision to achieve the 3 foot increase in height.
10

11 Q. And have you anything to add
12 about sheets (C-1) and (C-2) of Exhibit CP-A?

13 A. I can't think of anything.

14 Q. Okay, and I show you estimates
15 of cost apparently prepared by your firm with respect
16 to Alternate 1, the alternate with a pump and
17 Alternate 2, the alternate without a pump but with
18 a grade raise. Alternate 1 for \$148,000 and
19 Alternate 2 for \$211,000.
20

21 Were these estimates prepared in your
22 firm subject to any contribution by CP Rail of
23 information supplied, and if so please identify?

24 A. Those are correct. Those
25 were prepared by my firm.
26

27 Q. In their entirety?

28 A. In their entirety.

29 MR. CHALMERS: Could that be marked
30



E 3 1 as Exhibit CP --

2 THE HEARING PROCESS OFFICER: CP-J
3 Mr. Chalmers.

4 MR. CHALMERS: CP-J.

5 --- EXHIBIT NO. CP-J: Estimates of Cost with
6 respect to Alternate 1
7 and Alternate 2.

8 MR. CHALMERS: Q. Is there any
9 particular detail of that estimate that you wish to
10 draw to the attention of the Commission at this time?

11 A. I don't think there is. I
12 think the estimate speaks for itself but if it does
13 not, I would be pleased to answer any questions.

14 Q. No. I haven't any.

15 MR. CHALMERS: Now the Committee will
16 know, the Panel will know that CP-A, CP-B, and CP-C
17 appear to be signed by R. S. Allison, Vice President,
18 Eastern Region, CP Rail and P. C. Fuller, Regional
19 Engineer, Eastern Region, CP Rail. They were part of
20 Exhibit CP-A originally tendered.

21 Q. I now take you -- before we
22 go to the final sheet of CP-A, I now take you to as
23 yet unmarked sheets not signed by Mr. Allison or Mr.
24 Fuller and dated by you October 17th, '75 and not
25 entered in the previous round of hearings as far as
26 I can ascertain, Mr. Chairman, and I will be handing
27 those out in a moment.
28
29
30



E 4 1 These are sheets headed -- they are
2 your drawings number LB-889, sheets 1 and 2, and they
3 are headed -- they are not particularly headed as to
4 what they would show. They appear to show a proposed
5 pedestrian underpass, at least according to sheet 2.
6 They appear to show a proposed pedestrian underpass
7 that goes beyond, into the park, that has no snake-
8 like portion. I would tender this. Is this a
9 drawing prepared in your offices a little over two
10 years ago?
11

12 A. Yes it is.

13 MR. CHALMERS: I would tender this as
14 Exhibit CP --
15

16 THE HEARING PROCESS OFFICER: CP-K.

17 MR. CHALMERS: CP-K.

18 --- EXHIBIT NO. CP-K: Drawings number LB-889,
19 sheets 1 and 2, re proposed
20 pedestrian underpass at
 Parent Avenue.

21 MR. CHALMERS: Q. Now has what I
22 have said so far about the plan done two years
23 apparently for a proposed pedestrian underpass
24 trespassing into Optimist Park correct, or do you
25 want to set me straight?
26

27 A. No.

28 Q. In some manner?

29 A. I believe your description is
30



5 1 correct. The purpose of this drawing was one of the
2 alternatives for a pedestrian crossing at Parent
3 Avenue which we prepared in 1975 on the basis of our
4 original terms of reference and in conformity with
5 out objectives of doing the job with the best possible
6 solution, with the most safety security of the
7 pedestrians in mind and at a most reasonable cost
8 having those conditions in mind at all times.
9

2 10 You are correct in your statement that
11 the underpass requires the encroachment on the north
12 side and unfortunately Drawing 2 is reverse to what
13 you have been looking at --
14

15 Q. I was pointing in the wrong
16 place, right.

17 A. It requires the encroachment
18 on the north side onto lands which were then shown on
19 that drawing as Memorial Park. Memorial Park is an
20 outdated name. It's now called Optimist Park. The
21 encroachment extends about 20 feet.
22

23 It does not extend beyond the location
24 of an earth berm which runs along the north side --
25 pardon me -- runs along the north side of the right-
26 of-way or on the south side of the park.

27 This earth berm appears to be a mound
28 of earth that is continuously along the north side of
29 the right-of-way on the parklands. It is about 6 feet
30



1 high and about 15 or 20 feet wide.

2 I honestly don't know how it got there
3 or what it really is used for but the reason we felt
4 that our solution was an appropriate one and that the
5 City shouldn't be upset about the encroachment was
6 that the construction would not extend beyond the
7 berm and therefore, in our view, would not encroach
8 upon any useful parkland space.

9 Q. And can you play soccer across
10 the -- or any other games -- across the area which
11 you propose to use for access to the underpass?
12

13 A. If I could refer to sheet 1
14 of the Drawing LB-889, there is a soccer field
15 immediately north of the earth berm and the earth
16 berm again shows on sheet 1 to the right of the
17 darkened pedestrian crossing and you can see where
18 it extends continuously along the north side of the
19 Railway's right-of-way and the soccer field is a
20 small soccer field.
21

22 It terminates about 20 feet to the east
23 of the existing walkway which crosses the park.
24

25 The goal posts are about 10 feet east
26 of the walkway and it appears that pedestrians can
27 walk through even with a soccer game in progress,
28 although the likelihood of a soccer ball flying in
29 their direction would be there but there is, as I say,
30



7 1 a small soccer field with a set of goal posts about
2 150 feet north of the north limits of CP Rail.

3 Q. All right, and do you remember
4 or could you indicate the dimensions of the underpass
5 that you drew a couple of years ago or that your firm
6 drew a couple of years ago?

7 A. Yes. Firstly, the advantage
8 of this underpass is that --
9

10 Q. Well before you get to the
11 advantages, what are the dimensions?

12 A. The underpass is a -- this
13 particular one was to be 8 foot wide measured on the
14 skew of the track. That means that it is less than
15 8 feet on the square and I would estimate about 6 feet
16 in square width and 8 feet high.

17 It would extend again as in the
18 previous alternatives discussed, for the full width
19 of the railway tracks. It would have concrete head
20 walls. The access ramps would be concrete walks with
21 a 10% slope. Again with landings to conform with
22 building requirements for the safety of handicapped
23 persons. Fully floodlighted. Fully lit on the
24 interior with vandal proof fixtures and not requiring
25 any drainage facilities because gravity drainage would
26 be available on account of its height which can be
27 achieved by the grade raise of the tracks of CP Rail.
28
29
30



E 8

1 MR. CHALMERS: Your Panel will

2 recall that I had opened by saying (and this is a
3 matter of law) that CP Rail has not presented a plan
4 such as this because it is not at all sure that it
5 can itself take part of the park for this purpose.
6 However as I understand Section 218 that you can do
7 so or you could enable us to do so if so desired.
8

9 Q. And what is your preference
10 among A, B or C?

11 A. Well of A, B and C --

12 Q. I am sorry. A, B and C of
13 CP-A and -- well, let's do it the way I started to
14 do it by mistake. What is your preference, as an
15 engineer, among A, B and C of the marked exhibits.
16 That is CP-A, CP-B and CP-C?
17

18 A. Well, I prefer A.

19 Q. Why?

20 A. Because it is the most safe
21 crossing from the standpoint of pedestrian security
22 in my view.
23

24 Q. The overpass and why is that?

25 A. A pedestrian using this
26 crossing is visible to someone either on the north or
27 south side of the tracks or even in fact down the
28 tracks. It will be fully floodlighted so that someone
29 using the crossing at night would be in view hopefully
30



E 9 1 of someone watching for them or even another person
2 in the area and any acts of violence which might be
3 committed by thugs or criminals would be, in some
4 measure, curtailed by that design.

5 It is not the most economical design.
6 It is not the most easily utilized design. But the
7 discomfort to the pedestrian is greater but I feel
8 that it would be superior to the other two because
9 they are fully submerged in the case of the grade
10 raise alternative by virtue of the fact that they
11 have to exit on ramps coming up on the north side
12 which would obscure the view of anyone trying to
13 watch for someone's safety.

14 Q. Now if you include in the
15 comparison CP-K, the two year old drawing that is
16 not signed by Messrs. Allison and Fuller, what comes
17 of your preference?
18
19
20
21
22
23
24
25
26
27
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29
30



F.1 1 A. I much prefer CP-K.
PC/ko

2 Q. Why?

3 A. It is -- first of all it has
4 the least -- presents the least amount of discomfort
5 or dislocation to the pedestrians. The energy
6 required to cross the railway tracks is minimized.
7 The crossing provides for a grade raise which enables
8 a person to in fact see through the tunnel.
9

10 Now, there is not a full view of the
11 tunnel but the upper half of the tunnel is fully
12 visible from either end.
13

14 The tunnel is short. It is only a
15 matter of 50-odd feet with the result that I feel
16 the security of the pedestrians is maintained.

17 Their discomfort, or energy used is
18 minimized and in fact the cost the construction is
19 reasonable considering the benefits that accrue.
20

21 Q. Now, I have not tendered the
22 two year old -- I do not know if there are two year
23 old construction costs. I have not tendered them
24 for reasons which I take it you are familiar with,
25 the Panel, because construction costs have changed.

26 Now, do you have construction estimates
27 of a current nature?

28 A. I took it upon myself to
29 examine the situation. I would estimate on today's
30



F 2 1 costs that alternative K would cost approximately
2 \$202,000. It is in comparison with the underpass
3 with a grade raise of \$211,000 in alternative C.
4 It compares with the overpass \$226,000, and the most
5 favourable construction cost is the underpass
6 without the grade raise \$448,000, but I feel the
7 contingent disadvantages are such that they should --
8 the alternative ---
9

10 Q. Well, I suppose -- to sort of
11 exhaust the categories I suppose there is an
12 alternative of a through, a see-through underpass
13 trespassing on the park without a grade raise which
14 would be very cheap.
15

16 A. Yes.

17 Q. You do not recommend that I
18 gather from your evidence?

19 A. No. For the same reasons I
20 do not recommend alternate C. I do not recommend the
21 alternate which would encroach on the park and which
22 would have the same disadvantages.
23

24 Q. Can you just state them please
25 so the record is clear?

26 A. The disadvantages?

27 Q. Yes. Why do you not recommend
28 the alternative for which we have no drawing which I
29 put before you as a hypothetical question, the see-
30



F 3 1 through underpass with no grade raise?

2 A. The first disadvantage is it
3 encroaches further on the park because it would be
4 3 feet deeper and would require 30 feet more
5 entrance or access ramp which means the encroachment
6 on the park would be 30 feet further.
7

8 Q. Right into the soccer field?

9 A. Right into the soccer field
10 area. Frankly, I did not consider the soccer field
11 in making the proposal and I would not today because
12 if you, if people are not more important than soccer
13 then something is wrong.
14

15 The other disadvantage is the lack of
16 visibility for pedestrians.

17 The greater degree that the person has
18 to descend and rise again which involves him in
19 greater energy exertion and lastly the lower underpass
20 without the grade raise requires the construction of
21 a mechanical pump to pump the opening clear of water
22 for storms, and that is a mechanical device which we
23 all know can fail on occasion.
24

25 Q. And the particulars of the
26 grade raise. Are they different or the same from
27 the grade raise involved in the signed plan?
28

29 A. They are identical.

30 Q. Identical. All right. Now,



F 4 1 I show three photographs and I am instructed I can
2 bring the photographer tomorrow morning if you want
3 him.

4 MR. WOODARD: Mr. Chalmers, before
5 you go into another exhibit, I just wonder if the
6 witness would give us some general estimate of what
7 the distance travelled by pedestrians on the three
8 different groups would be to get over the track.
9 Just in rough figures.

11 THE WITNESS: The pedestrian has to
12 climb for the overpass, has to climb 23 feet more or
13 less vertically and at each end of the ramp has to
14 travel 400 feet approximately to do that, so that
15 the total distance travelled is almost 800 feet.

17 MR. WOODARD: To cross the track?

18 THE WITNESS: To cross on the over-
19 pass shown on CP-A(A1).

20 On CP-A(B), 1 and 2, which is the
21 alternative, with the underpass and no grade raise,
22 the pedestrian has to descend approximately 11 feet --
23 pardon me, 8 feet vertically and travel a total of
24 -- just a minute, I will have to get my scale --
25 about 140 feet to achieve that difference of grade.
26 Now, I stand corrected -- 210 feet.

28 On alternate 3 or CP-A(C1 and 2),
29 the proposed underpass with a grade raise a pedestrian
30



F 5

1 would descent about 5 feet and have to travel about
2 130 feet to accomplish that difference of elevation.
3 These distances I am giving you are distances in
4 addition to the horizontal, as the crow flies,
5 distance across the crossing. In other words, if
6 you walk on level ground across there and he has to
7 do that anyway, these are in addition to that.
8

9 The new proposal, or the one that has
10 not been heretofore an exhibit called CP-K, it
11 requires the pedestrian to descend at approximately
12 5 feet. He virtually has no additional distance to
13 travel. Mainly the difference in the horizontal
14 measurement as opposed to the hypotenuse of the
15 triangle which is not very measurable and I have not
16 considered that in the other cases either.
17

18 THE CHAIRMAN: Mr. Chalmers, there
19 are a couple of general areas that I thought perhaps
20 I should warn you at this stage that we would like
21 you to treat and that is the comparison, if one can
22 be made, between these proposals for pedestrian
23 crossings here at Windsor, a comparison between these
24 proposals and any other overpass or pedestrian
25 crossings in similar circumstances anywhere else in
26 Canada.
27

28 MR. CHALMERS: Is this a list ---

29 THE CHAIRMAN: Well, now, the other
30



F 6 1 general area that I thought I had better ask you about
2 is whether we could before we are finished have a
3 comparison of the standard of construction of the
4 sidings themselves as compared to other sidings
5 handling similar traffic elsewhere in Canada so we
6 would have some bench mark or something to compare
7 them.
8

9 MR. CHALMERS: I expect I can --
10 now, whether I can tomorrow morning.

11 THE CHAIRMAN: Well, I am going to
12 give you a whole list of questions. I have 15 or
13 16 here that we have thought of so far in the course
14 of your presentation and at the end of your evidence
15 I thought we could give you this list of questions
16 and if you cannot deal with them now, which you
17 probably will not be able to do, then we would have
18 more evidence when we re-convene.
19

20 MR. CHALMERS: Well, I appreciate
21 your indulgence in that regard very very much. On
22 the standard of construction I think frankly in
23 preparing this we have regarded the Canadian Transport
24 Commission as something of an authority on that. Shall
25 we place -- we have been telling you many many things
26 you already know.
27

28 THE CHAIRMAN: Well, while you are
29 telling us what we may already know, you are also
30



F 7

1 telling the public and they may not know.

2 MR. CHALMERS: Quite so. We
3 proceeded in many areas on that basis. We welcome
4 the opportunity to proceed on that basis in other
5 areas and I appreciate the notice and insofar as a
6 comparison of crossings, that is what I am coming to
7 right now, I trust, in a manner I trust will be
8 satisfactory insofar as a comparison of the standard
9 of construction.
10

11 I have every confidence as to the
12 evidence whether I can have it before you immediately
13 -- you have, of course, inspected it and your
14 inspectors are very familiar with it.
15

16 THE CHAIRMAN: I appreciate the
17 inspecting engineer will be talking about it in due
18 course. He will have to be called and give evidence
19 when we resume, but that is not part of the
20 Applicant's evidence.
21

22 MR. CHALMERS: Oh, no, quite right.

23 THE CHAIRMAN: I, you know, feel
24 there may be some obligation on the Applicant to
25 indicate at least the sidings are as good or
26 equivalent to sidings elsewhere.

27 MR. CHALMERS: We were, frankly, we
28 were relying on his remarks while they are negative
29 aspects in regard to this, we will find evidence.
30



F 8

1 THE CHAIRMAN: Well, it occurred to
2 me this witness had been working on the Québec North
3 Shore Railway. He may himself have some qualifi-
4 cations -- well, I thought I should tell you this is
5 one of the things we had in mind.
6

7 MR. CHALMERS: I thank you for those
8 two points.

9 Q. Have you considered the
10 siding -- have you looked at this total construction
11 of the total sidings, Powell Sidings, or not?
12

13 A. I have to confess I did not
14 look at it with a view to examining the construction
15 with a critical eye in seeing whether it would meet
16 the standards I have learned about. I had not given
17 it any thought or investigation.

18 Q. Well, we will let that go for
19 the moment.
20

21 THE CHAIRMAN: I make one further
22 observation Mr. Chalmers, and that is that you have
23 complete control over how you put in your own case.

24 MR. CHALMERS: I appreciate that.
25 Also, I appreciate your criticism in that regard and
26 I also appreciate you telling me anything that troubles
27 the Commission or the Commission feels that should be
28 covered.
29

30 Well, in any event, I may proceed then,



1 if I may, to show you three photographs taken by an
2 individual who is available if the Commission is
3 interested in shutter screens and so on. I have no
4 opponents to demand he be made available and so on.
5 These are photographs of the CN underpass at Frank
6 Street in Belleville, Ontario, which I am instructed
7 has an interior width of 7 feet, has a height of
8 7 foot 6 at the end, and is 7 feet in the centre.
9 The walkway width of 7 feet in the interior which
10 approach is 4 feet wide. The length of roof line
11 of 66 feet was constructed in 1973 and its interior
12 is painted white, painted concrete.

13
14 I show you three pictures showing an
15 exterior view of an approach, an exterior view of
16 the other end showing an approach with barriers to
17 motorcycle travel and a view right through the
18 walkway, the underpass in question, and there appear
19 to be some lights at the top. I realize you have
20 not visited or studied that town as far as I know,
21 that walkway as far as I know, but have you -- how
22 does that compare with what you propose to build
23 from what you can see in those photographs?

24
25 A. It is remarkably similar to
26 the proposal which has been identified as Exhibit K --
27 CP-K.
28

29 If I could comment.
30



Q. Please.

A. The tunnel has about the same degree of visibility that was proposed for Exhibit CP-K. In other words, from either end the pedestrian would be visible, at least the upper half of him.

MR. CHALMERS: I wonder if you could just keep your comments for a second witness, until I furnish that with the permission with the Commission, if that could be Exhibit CP-L, photographs A, B and C.

THE CHAIRMAN: Did you say the photographer was available?

MR. CHALMERS: Well, he is in Toronto. We will bring him if that will serve a purpose for the Commission. I am instructed that can be done and I do not think we have spoken to Saturday.

- - - -



1 THE CHAIRMAN: Mr. Chalmers, the
2 problem that we have is that we do not have any
3 legal evidence on the record which would prove that
4 these photographs were taken at a railway underpass
5 at Belleville, Ontario. And the Members, I have
6 discussed this with my colleagues, the Members of
7 the Panel do not think that the expense of bringing
8 a photographer here is really justified. But if you
9 could file a short affidavit of the photographer
10 indicating where these photographs were taken and
11 that they accurately represent the views that he
12 photographed, that would be quite satisfactory.

13
14
15 MR. CHALMERS: I will undertake to
16 do that promptly. I am satisfied that the witness
17 has the correct three photographs. I apologize for
18 the delay. I was trying to make sure, with the
19 assistance of your Hearing Process Officer, that the
20 -- if anyone has this photograph it is the wrong
21 photograph.

22
23 MR. McDONOUGH: Is that the wrong
24 one?

25 MR. CHALMERS: That's the wrong one,
26 sir.

27 MR. WOODARD: I am okay.

28 MR. CHALMERS: Q. Now to go on
29 then with Frank Street underpass and you have read
30



1 the particulars of it. What have you to say about
2 the Frank Street CN underpass?

3 A. The construction is quite
4 similar to that proposed by us and shown on the
5 drawing called Exhibit K. One difference I would
6 point out to the Committee is, to this hearing, is
7 that on the print that shows hydro poles, which is a
8 view taken from, it looks like a hundred feet away
9 from the crossing. This particular one is in an
10 area where the ground slopes away to the right on
11 the picture. In our particular case there would be
12 a bank up the other side similar to the grassy bank
13 on the left hand side of this photograph. That's
14 the only dissimilarity in that view.

15 The view that shows the yellow post
16 and chains to prevent bicycles and motorcycles is
17 typical of the construction that has been proposed
18 in all of the alternatives. And the visibility of
19 the tunnel at that location, I would say, would be
20 typical of the type of visibility that would be
21 achieved by the crossing shown on Exhibit K.

22 And the close-up view of the interior
23 of the tunnel which vaguely shows the lights, if you
24 look carefully at the ceiling, the drainage catch
25 basin or the drainage grillwork and the degree of
26 visibility again, I would say, is typical of the



1 proposals given on Exhibit K.

2 Q. Can I show what appears to be,
3 and I am instructed, and an affidavit will be filed --
4 the photograph of a CN pedestrian underpass at
5 Fielding Drive in Ottawa, Ontario. It was built in
6 1972, I am instructed, and has a length of roof line
7 of 28 feet, interior width 10 feet, interior height
8 of 7 feet 8, a walkway with interior 10 feet,
9 approaches 10 feet, interior finish is white glazed
10 tile wall. And there appear again in one of the
11 photographs to be some lighting and there appears to
12 be instead of the structure at the end there appears
13 to be a single post at the end.

14 How does that compare with your
15 underpass design a couple of years ago?

16 A. If I could go back to the
17 testimony on the first exhibit or the first photograph.
18 There is one dissimilarity I did not bring to the
19 Commission's attention. That is that the walls of
20 the first underpass were painted concrete. The walls
21 of any proposed underpass that we have presented in
22 this hearing will be glazed tile, simply to keep the
23 walls clean and free of obscence writing and so forth.

24 This latter set of photographs, which
25 you have now given me, has that feature incorporated.



1 The structure is somewhat similar to
2 that proposed on Exhibit K. I would say that the
3 degree of visibility is slightly better in the
4 photograph for the structure that you have photographed
5 than for the proposed which we would have put forward.
6 It appears that there is a high degree of visibility
7 at the one end of the tunnel with a lesser degree at
8 the other end, the lesser degree being somewhat
9 similar to the type of visibility that we would expect
10 to be achieved if the work were constructed in
11 accordance with Exhibit K.

12 The single post in the middle of the
13 walkway I do not believe is satisfactory. And in
14 that sense it is not similar to our proposal.
15 Motorcycles and bicycles could obviously race through
16 this tunnel causing some hazard to pedestrians.

17 Q. Thank you. And subject to the
18 provision of an affidavit might these photographs
19 be given a number. The first set of three of the
20 Belleville underpass could be CP-L; and the set of
21 the Ottawa underpass be CP-M; the first set consisting
22 of three photographs and the second consisting of two.

23 Can you tell anything about the
24 construction features from those photographs? Can
25 you tell anything about the construction features of
26 the CN underpasses that we are showing pictures of?



1 --- EXHIBIT NO. CP-L: Set of three photographs
2 of the Belleville underpass.

3 --- EXHIBIT NO. CP-M: Set of photographs of the
4 Ottawa underpass.

5 THE WITNESS: They are a standard
6 type of reinforced concrete, rigid box construction
7 which we have proposed. Our proposal would be almost
8 identical to this type of construction.

9 MR. CHALMERS: Q. Have you any
10 knowledge or information as to, as to whether these
11 are the sort of three strange eccentric underpasses
12 of this construction or whether it is general or
13 what the position is as far as acceptance of this
14 type of structure?
15

16 A. This is quite a standard
17 design.

18 Q. Now I show you a set of 11
19 pictures of what I am instructed is an underpass
20 over the Toronto Transit Commission -- You will
21 see a subway train running along the surface, a
22 Toronto Transit Commission line in Toronto. I ask
23 you to look at the series of 11 photographs and I
24 regret that contrary to my hope I have one, I have
25 no copies whatsoever. Of course they will be
26 furnished to everyone -- if you admit them a
27 necessary affidavit will be furnished.
28
29

30 I have 11 prints of an overpass over



1 the Toronto Transit Commission surface trackage and
2 subway system, as I am instructed, and it appears to
3 be from the subway train in it. And the photographs'
4 location with a hydro wire of some type in the
5 vicinity, I show you these and ask you to take a
6 moment to look at the 11 photographs. And perhaps
7 if the Commission is prepared to entertain them,
8 comment on them briefly for the record even though
9 I am afraid no one but you will be looking at them
10 as to the comparison between your proposed overpass
11 and these photographs.
12

13
14 A. If it would help I could
15 comment them and hand the pictures to the Committee
16 as I do so.

17 The first photograph shows the ramp
18 system leading up to this overpass. And it
19 illustrates the slope which is typical of the 10%
20 slope we have talked about and the landing ramps, the
21 landings which are spaced and would appear to be at
22 30 foot intervals. Again I would say in accordance
23 with the appropriate building code of the time.
24

25 THE CHAIRMAN: Mr. Chalmers, perhaps
26 I could interrupt at this stage, my colleagues and I
27 agreed that in view of the fact that we started
28 earlier we would take a break earlier. And just
29 before we start looking at these photographs, perhaps
30



1 we could take a short break.

2 I was also going to suggest that we
3 might look at these photographs in the same way you
4 do with your photographs that you took on vacation,
5 in other words pass them around so that everyone gets
6 a chance to see them even though there is only one
7 set.
8

9 MR. CHALMERS: Yes, I am terribly
10 sorry that there is only one set.

11 THE CHAIRMAN: We will adjourn for
12 a short break.

13 --- Brief recess
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H-1

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--- On Resuming.

MJCeg

2

THE CHAIRMAN: Please be seated.

3

MR. CHALMERS: Now before we begin --

4

oh, if I may, Mr. Chairman?

5

THE CHAIRMAN: Yes.

6

MR. CHALMERS: Before we go back to

7

the eleven photographs, Mrs. Henderson has asked me

8

to ask a question of the witness in chief to define

9

something. There seems to have been some confusion

10

about what a switch back is in CP-A-1 and A-2, the

11

overpass drawings.

12

13

Can you explain precisely what you

14

mean and what the significance is of a switch back

15

in the overpass structure?

16

17

A. Yes.

18

Q. And perhaps point for the

19

Commission.

20

A. This is my own terminology.

21

I am not sure if it is exactly correct. I have

22

never encountered the question before.

23

24

The ramps commence at grade and a

25

pedestrian would walk in, let's say, an eastward

26

direction rising at the rate of one foot vertically

27

for each 10 feet travelled horizontally until coming

28

to the end of the structure where there would be a

29

flat landing. The person would turn through 180

30



LaFontaine, dr. ex.
(Chalmers)

H-2 1 degrees on that landing and then start to proceed
2 in a westerly direction climbing at the rate of 1 foot
3 vertically for every 10 feet horizontally until
4 coming to about the middle of the structure where
5 there would be another landing which is simply a
6 safety landing for the benefit of handicapped
7 persons and then would continue in a westerly
8 direction to the west end of the structure where
9 there would be another landing at which point the
10 pedestrian would turn himself through 180 degrees
11 and proceed easterly repeating the process over and
12 over until he has raised himself to the deck level
13 of the bridge which would go across the railway so
14 he switches back upon himself a number of times.
15 One, two, three, four, five, six times.

18 MRS. HENDERSON: Thank you.

19 MR. CHALMERS: Q. Okay. If we
20 could revert -- you have ten of the photographs of
21 apparently what is the TTC overpass in Toronto and
22 the Commissioners have one. I might say, sir, that
23 the ladies at the second counsel table in the middle
24 of the room have inspected the ten which Mr.
25 LaFontaine still has but not touched the one on your
26 table.
27

28 Would you like to proceed through the
29 pictures?
30



H-3
1

A. Yes. I handed to the
2 Committee a photograph, the first photograph which
3 shows the arrangement of the ramps and how they
4 switch back on themselves in order to raise the
5 necessary distance to clear the tracks. Another
6 photograph ---

7
8 MR. CHALMERS: Could my colleage,
9 Mr. Hillmer, mark a "2" on the back of the one you
10 are now talking about. Thank you. Yes.

11 You are now talking about No. 2.

12 THE WITNESS: All of these
13 photographs showing the ramps show ramps that have
14 what I call hand rails to protect the pedestrian from
15 falling off the ramps. This is not the same type
16 of protection that we propose. Our protection would
17 be a totally enclosed structure which would prevent
18 a person from climbing over the hand rails and
19 dropping off or falling off or throwing objects over
20 or shoving objects through the vertical posts of the
21 hand rails.

22
23
24 The third photograph I hand you is
25 one which illustrates the slope of the ramps and the
26 switch back effect. It also clearly shows the open
27 type of hand rail, a rather low hand rail, with no
28 further safety protection.

29 The next two photographs, 4 and 5,
30



104

1 further illustrate the point -- I might say that
2 these ramps are approach ramps to the bridge
3 structure over the tramway I guess we are talking
4 about.

5 The next two photographs, 6 and 7 --
6 is that where we are at -- 6 and 7 illustrate the
7 form of chain link or mesh fencing which would be
8 put around the proposed structure for Windsor.

9 You will note that that is simply
10 a fence with a mesh wire, with what we call a
11 barbed wire lookout to prevent climbing. Those
12 photographs are taken on the bridge, I would say, of
13 this particular structure over the tramway. They
14 indicate that a person could still throw objects
15 off the top of those wires onto people or things
16 below. There is no overhead protection for any
17 other reason.

18 The next photograph, 8, I guess it
19 is, illustrates again the fencing with no overhead
20 protection and in the picture is a view of a hydro
21 tower with overhead transmission lines and no
22 protection between the persons on the ground and
23 those wires although the distance appears to be
24 fairly substantial.

25 The clearance appears to be fairly
26 substantial.



H-5 1

The next photograph, 9, illustrates
2 the same condition.

3

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The next photograph shows the crossing
of the hydro line over the one end of the exit
ramp up in the air where it meets the overhead
bridge. It indicates how the wires in fact do
almost cross over and how the clearance between
the wire and the deck of the bridge is less now
than it would be in the grade picture you have
looked at earlier.

The last picture is a long range
view from afar showing the entire overpass with the
relationship of the Hydro lines to it and the
amount of clearance that has been included.

THE HEARING PROCESS OFFICER: This
will be Exhibit No. CP-N.

--- EXHIBIT NO CP-N: Series of Eleven
Photographs.

MR. CHALMERS: Q. And subject to
the filing of an affidavit by these photographers -
it was a different photographer than Exhibit M so
there will be two affidavits you require, sir.

Now then on Exhibit CP-N, can you
form any views on those photographs, apart from
what you have already expressed and you have
expressed some views about the hand rails and so



H06

1 on, any views as the comparison of the overpass
2 shown on CP Sheets A-1 and A-2 and the structure
3 shown in the eleven photographs, Exhibit CP-M?
4

5 THE HEARING PROCESS OFFICER: CP-N.
6 "N" as in November, Mr. Chalmers.

7 MR. CHALMERS: N as in November.
8 Thank you.

9 THE WITNESS: The biggest -- well
10 firstly the comparisons I have mentioned, the
11 ramps and the switch backs, the amount of pedestrian
12 travel and the energy required are somewhat similar.
13 The proposed overpass for CP Rail in this case has
14 a more compact series of ramps, partly because of
15 the constraints imposed by the condition that we
16 must work within the limits of the CP right-of-way.
17

18 I can't tell from the photographs
19 what the vertical clearance had to be from the
20 bridge structure to the rail. I presume it would
21 be similar but I believe, looking at the photographs
22 also, that the topography was such that there was
23 some chance for the designer to utilize the ground
24 elevation or the approach elevation and there
25 wasn't the need to create as much ramp structure to
26 achieve as much vertical clearance because the
27 ground already seems to provide some of that.
28
29

30 I was critical of the type of hand



H-7

1 rail or guard rail. I still am because I believe
2 that is a railing or type of railing which we have
3 found, by experience, can lead to various kinds of
4 acts of vandalism, suicide, mischief of various
5 types and I may say that in the City of Detroit on
6 the freeway system the only foolproof method of
7 having pedestrians cross over the freeway is to
8 fully enclose the pedestrian ramps with a chain
9 link wire mesh fencing because there have been
10 accidentals who have thrown objects in the pass of
11 vehicles and caused even death.
12
13

14 Therefore I would be critical of
15 that design and our design overcomes that objection.
16 Our design further, I think, has better control in
17 keeping pedestrians off the right-of-way of CP Rail.
18 Our fencing arrangement is such that unless the
19 person deliberately climbs the fence he could not
20 enter the right-of-way of CP Rail by way of this
21 proposed crossing and I think that's important.
22

23 One of the dangers of the existing
24 crossing, of course, is that people can walk -- can
25 get on the right-of-way of CP Rail and there is
26 always an inherent danger to pedestrians walking down
27 a railway right-of-way.
28

29 Q. Do you feel qualified to
30 talk about the problems of loading of the hydro wires,



I-8

1 live loads of a conductor and the matter of what
2 would happen if a cable fell on this structure or
3 is that outside your competence?
4

5 A. No. My forte is of
6 structural engineering and have allowed for any manner
7 of combinations of loadings on the proposed overpass
8 structure including the investigation or
9 consideration of the possibility of a cable snapping
10 and breaking and falling onto the structure and
11 therefore causing additional live loads.
12

13 MR. CHALMERS: Are you prepared and
14 understand that in effect you are required, if
15 necessary, to re-attend in January for cross-
16 examination?
17

18 THE WITNESS: Yes. The only request
19 I would make is that I be given adequate notice
20 because my appointment calendar starts filling up -
21 probably three or four weeks in advance ---
22

23 MR. CHALMERS: Well, of course, that
24 is true of all witnesses and I am respectfully
25 confident that the Commission will give what
26 consideration it can---
27

28 THE CHAIRMAN: And we will announce
29 our resumption date today, Mr. Chalmers.
30

31 MR. CHALMERS: Thank you. That
32 answers your question.



1 THE WITNESS: I will reserve my
2 time accordingly.

3 MR. CHALMERS: Thank you very much.
4 Unless the Commission have any questions of you ---

5 THE CHAIRMAN: I just have a
6 recollection that somewhere in my examination of
7 some of these plans I noticed that the overpass
8 structure was grounded and when you were talking
9 about a wire snapping I wondered what effect that
10 might have on someone using the overpass at the time
11 the wire, assuming it is a live one, struck the
12 overpass?
13

14 THE WITNESS: Well, I will give you
15 the information I received from Ontario Hydro and
16 others that I have talked to about this but I am
17 not competent.
18

19 THE CHAIRMAN: Well in that case we
20 will hear from the Ontario Hydro witnesses I presume.
21

22 MR. CHALMERS: Yes. In about two
23 minutes.

24 May this witness be excused. May he
25 go about his business?

26 THE CHAIRMAN: Yes.

27 MR. CHALMERS: Until he is required
28 again by you some time next month, sir.
29

30 THE CHAIRMAN: Yes.



H-10

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MR. CHALMERS: You are excused.

Thank you.

THE CHAIRMAN: You are excused.

--- The Witness Withdraws.

MR. CHALMERS: David Bellows.

DAVID CHARLES BELLOWS, Sworn.

THE HEARING PROCESS OFFICER: Would you state your name and spell your last name one for the record, please?

THE WITNESS: David Charles Bellows, B-e-l-l-o-w-s.

THE HEARING PROCESS OFFICER: And your address?

THE WITNESS: 23 Six Penny Court, Thornhill, Ontario.

THE HEARING PROCESS OFFICER: Thank you.

DIRECT EXAMINATION BY MR. CHALMERS:

Q. Is your microphone on, Mr. Bellows?

A. I think it is.

Q. So if you could speak so that we can all hear you?

A. Yes.

Q. Okay.

I am sorry. Mr. Hillmer has



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- 30

reminded me, if the Commission permit, that CP-A-L-889
and O-1 and L889-2 dealing with the matter of
drainage of the north ditch have not been put
before you. I would strongly suspect ---

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PCeg 2

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MR. CHALMERS: I strongly suspect that there will become proper reply evidence in light of what you will ultimately hear from the objectors about drainage but as far as this

case, in advance, they really ought to be there and I would be grateful for the opportunity to put them but having missed out on having more than the drawings in I am not entitled to that. I am in your hands.

THE CHAIRMAN: We are most anxious to have you put in your complete case so that everyone will know and have the period of the adjournment to examine it so I would be quite prepared and I'm sure my colleagues would agree to have those two proven as you wish.

MR. CHALMERS: Could Mr. Bellows step down then. Remember please, you are sworn. And could Mr. LaFontaine take the stand for just a moment.

EDWARD O. LA FONTAINE, (Recalled)

FURTHER DIRECT EXAMINATION BY MR. CHALMERS:

Q. I direct you, Mr. LaFontaine, to Exhibits CP-A-(LB890-1 and -2) which is headed "Profile of Drainage, North Side Ditch" on Sheet 2 and "The Plan of Proposed R.O.W. Drainage", on Sheet 1.



I-2

1

R.O.W. I assume, is right-of-way?

2

3

4

5

6

Would you tell the Commission please what these apparent drainage plans are about, what they show and describe them slowly that everyone follows?

7

8

9

10

11

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13

14

A. Yes. In our work in 1975 authorized by CP Rail we were authorized to examine all elements of the right-of-way which may affect the crossing and in the course of our investigation we noted that generally speaking there did not appear to be any adequate means of draining the north side of the right-of-way.

15

16

17

18

19

We searched rather diligently and could not find any culverts or pipe or ditches which to take the water away from the north side of CP Rail right-of-way.

20

21

22

23

We further looked at the entire drainage pattern in the area and concluded that the water comes from the north side of the right-of-way on the lands of the City of Windsor.

24

25

26

27

28

29

30

The natural slope of the land is southerly and westerly toward the right-of-way. You may notice in Sheet 1 of the drawing, LB890, there is a drainage ditch which crosses the middle portion of the sheet and crosses the railway right-of-way just east of Walker Road, This is one of the major



-3

1 drainage ditches in the City of Windsor known as
2 the Grand Marais drain. Naturally the land slopes
3 towards that drain.

4 Having made the investigation, we
5 indicated to CP Rail that we felt or indicated to
6 CP Rail in our observations there was no apparent
7 drainage outlet available for this water that was
8 ponding on the north side of the right-of-way and
9 we suggested a system of ditch improvements with
10 three outlets to existing sewers in the City of
11 Windsor.
12

13 We carried the matter no further
14 than there. We have not contacted the City about
15 using its outlets except that we feel the City ought
16 to be amenable to the plan since it in fact is to
17 a great extent their water.
18

19 Q. Did you prepare estimates of
20 cost of the drainage improvements along the north
21 side of right-of-way of the Canadian Pacific Railway
22 between Howard Avenue and Walker Road and the total
23 estimated amount of \$27,000. I show you a one page
24 estimate in that amount.
25

26 A. Yes. We prepared an estimate
27 in 1975 and this estimate you have now given me is
28 our estimate as of November 22nd, 1977 which has
29 been updated and increased to reflect cost
30



I-41 escalations at that time.

2 Q. And what you said about your
3 previous estimates applied to this and is there
4 anything here furnished to you by CP Rail?
5

6 A. No. This information is
7 entirely based on our own observations and our own
8 calculations.

9 Q. Unless the Committee have
10 anything further on the drainage plans or anything
11 else ---

12 I do thank the Committee for hearing
13 him again.
14

15 --- Witness Withdraws.

16 THE HEARING PROCESS OFFICER: This
17 last document shall be Exhibit CP-O.

18 --- EXHIBIT NO. CP-O: Exhibits CP-A-(LB890-1
19 and -2) headed "Profile
20 of Drainage, North Side
21 Ditch" and "The Plan of
Proposed R.O.W. Drainage".

22 DAVID CHARLES BELLOWS (Recalled)

23 DIRECT EXAMINATION BY MR.CHALMERS: (Cont'd)

24 THE HEARING PROCESS OFFICER: I
25 remind you Mr. Bellows, you are still under oath.
26

27 MR. CHALMERS: Q. You have been
28 sworn Mr. Bellows.

29 A. Yes.
30



1 Q. And you are an engineer in
2 this Province?

3 A. Yes.

4 Q. And you graduated in 1962 at
5 the University of Saskatchewan in Electrical
6 Engineering, is that right?

7 A. Yes.

8 Q. You have been employed by
9 the Ontario Hydro for ten years, is that right?

10 A. That is correct.

11 Q. Part of that, were you with
12 Bell -- with the Saskatchewan Telephone or with Bell
13 Telephone?

14 A. Bell Telephone in Ontario.

15 Q. Your work with the Hydro has
16 to do -- well, what is the area of your work with
17 the Hydro?

18 A. Primarily with the operation
19 and maintenance of transmission lines.

20 Q. What was the nature of your
21 work with Bell?

22 A. Design of Bell Telephone
23 facilities, toll lines and underground facilities.

24 Q. Are you familiar with your
25 Corporation's power lines adjacent to CP track
26 between Howard and Walker in Windsor?



1 A. Yes I am.

2 Q. There has been some evidence
3 about voltage. First of all, what voltage is there
4 on the signs. What is up on the signs adjacent?

5 A. The signs have a voltage
6 indicating 230,000 volts but these are incorrect.

7 Q. What is correct?

8 A. The correct voltage is
9 115,000 volts, phase to phase.

10 Q. Phase to phase.

11 A. Yes. There is a distinction
12 to be made here between voltage phase to phase and
13 voltage to ground.

14 When we come to interpret the
15 CSA standard --

16 Q. What is the voltage to
17 ground here in this line?

18 A. If I would be permitted to
19 round off to 67,000 volts.

20 Q. There is no digit in front
21 of the six?

22 A. No.

23 Q. There might be some smaller
24 ones after the seven, is that what you're saying?

25 A. Yes.

26 Q. Yes. Now, what is the
27
28
29
30



1 nature of this line. Is this bringing power to
2 Windsor or what?

3 A. The line provides power to
4 the central corridor area of Windsor.

5 It begins at the Keith Generator
6 Station on the west end of the city and more or less
7 follows the railway tracks supplying power to the
8 station at Crawford Avenue called Crawford T.S. and
9 to Essex T.S. which is at Walker Road and it
10 continues on from there to the west.
11

12 Q. And those initials stand for
13 what?
14

15 A. T.S. stands for transformer
16 station.

17 Q. Thank you. How many power
18 wires are there in this line?

19 A. The line has six, what we
20 refer to as conductors and one shield wire which is
21 the highest wire that can be observed on the
22 structure. The shield wire serves the purpose of
23 protecting the line from lightning strokes.
24

25 The other wires, the conductors, are
26 composed of aluminum strands over a steel core. In
27 common terminology for this particular wire it is
28 a CSR which means aluminum conductors, aluminum
29 reinforced.
30



1 Q. Is there anything special
2 about that wire?

3 A. No. The particular wire
4 that is on this line is one of the most commonly
5 used in our system in Ontario.
6

7 Q. Does it have any
8 characteristics in regard to durability, safety sag
9 or whatever?

10 A. Yes. We consider it one of
11 our most reliable wires. That is why it is used with
12 such predominance in the Province.
13

14 Q. What is the lowest altitude --
15 what is the maximum possible sag given the way those
16 particular lines are constructed in the section we
17 are interested in between Howard and Walker in
18 Windsor, given the separation of the towers and so
19 on?
20

21 A. The sag is related to the
22 operation of the conductor as far as temperature goes
23 and for any given temperature the conductor has to
24 have a sag which is related to it mathematically so
25 therefore, depending upon what temperature rating is
26 placed on the line, that will determine, through a
27 mathematical formula, what the sag of the conductor
28 will be.
29

30 In the section of line we are



1 referring to I did not calculate this particular
2 elevation myself but I have been provided the
3 information by our Engineering Department.
4

5 Q. By Ontario Hydro Engineering
6 Department?

7 A. Yes, by the Ontario Hydro
8 Engineering Department.

9 They have communicated to me at no
10 time will this particular conductor be lower than 27
11 feet, six inches above the top rail of the siding.
12

13 This is in accordance with CSA
14 standards.

15 Q. CSA standards. You are
16 referring now -- what CSA standard are you referring
17 to now?

18 A. The CSA standard C-22.3,
19 No. 1, dated November, 1973 "Overhead Systems and
20 Underground Systems".
21

22 Q. Okay. What requirement of
23 that Standard are you referring to?

24 A. Table 2 of CSA Standard
25 which is found at page 34. Table 2 provides a
26 minimum -- the title of Table 2 is "Minimum Vertical
27 Distance ---". "Minimum Vertical Design
28 Clearances Above Ground or Rails Alternating Current".
29

30 The bottom line on that page says:



1 "Above top rail or railway crossing." And, for the
2 voltage classification which we are talking about,
3 67,000 volts, the category between 50,000 volts and
4 90,000 volts indicates a minimum clearance of 27
5 feet, 6 inches.
6

7 Q. Above the top of the rail
8 or the bottom of the rail?

9 A. Above the top of the rail

10 Q. And do you have that in
11 this location?

12 A. Yes, we have it in all
13 spans under maximum load conditions which is the
14 maximum design operating temperature of the
15 conductor.
16

17 Q. Have you examined what is
18 now Exhibit CP-A-(A1) and (A-2)?
19
20
21

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23
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G/ko

1 -- (A-1) and (A-2), the overpass diagram?

2 A. Yes I have.

3 Q. And have you observed that
4 the last witness has, or his firm have purported to
5 mark the locations of hydro wires. Now did you hear
6 his evidence by the way?

7 A. Yes I did.

8 Q. Which is, as I understood it,
9 he had received those from your Commission, I should
10 refer to it as a corporation, I am sorry.

11 A. Yes, the elevation was provided
12 to him which he indicated in his previous evidence
13 was elevation 665, which is the elevation of the
14 conductor under maximum load conditions.

15 Q. And what have you to say about
16 the safety or otherwise of that clearance of that
17 wire, the lowest wire over the structure shown on
18 the two sheets of Exhibit CP-A, CP-A-(A), what have
19 you to say as to the safety of that, the clearance
20 of that wire over the structure from whatever point
21 you might consider significant? You might tell us
22 why you consider a particular point significant.

23 A. Basically there are two
24 criteria that have to be met with regard to this
25 particular structure. The first is, if it is
26 considered to be a pedestrian crosswalk, on table 2
27
28
29
30



2 1 as well of the CSA there is a minimum vertical
2 distance that there must be above the area of the
3 walkway traversed by the pedestrians. That minimum
4 distance is 13 feet.

5 As you will note on this particular
6 drawing with the elevation of our conductors at 665,
7 there will be approximately 20 feet separation between
8 the accessible portion of the walkway, which I
9 interpret to be the decking of the walkway.

10 The second criterion that has to be
11 met in this case is the elevation or the clearance
12 between the uppermost portion of the roof of the
13 structure and our conductors. This particular
14 structure as constructed I would interpret in that
15 location to be classed as a bridge. And consequently
16 the clearance to be provided would be that listed
17 in table 9 of the CSA Standards.

18 The conductor in this location is
19 located directly above the portion of that walkway.
20 And in the CSA Standards the clearance from the
21 supply conductor to the bridge given in feet of a
22 conductor not attached to the bridge, but over the
23 bridge, reads as follows - the clearance required
24 is 50,000, is the clearance which is required for
25 50,000 volts which is 10 feet plus .4 of an inch
26 for every 1,000 volts in excess of 50,000 volts.
27
28
29
30



J 3 1 So in this case we are looking at a
2 conductor whose voltage to ground is 67,000 volts
3 approximately. The arithmetic would provide one
4 with a distance of 10 feet 6.8 inches as the minimum
5 vertical requirement between the top of the
6 structure and the lowest point of our conductor.
7

8 This distance is provided to ensure
9 the safety of any workmen that may have to go on top
10 of that bridge and carry on maintenance such as
11 possibly painting.

12 Q. Perhaps you could first of all,
13 it's a matter of arithmetic, are the clearances that
14 you are looking for described on Mr. LaFontaine's
15 diagram as far as you know?
16

17 A. The specific clearance between
18 the conductor and the top of the structure is not
19 provided.
20

21 He has an elevation of 652.98 which
22 in earlier testimony he indicated was not the lowest
23 or the maximum elevation of that bridge. He
24 indicated there was another possibility two inches
25 over that. But even with the two inches that would
26 still provide adequate clearance between our conductors
27 and the top of the bridge in accordance with the CSA
28 Standards.
29

30 Q. And the clearance to the bottom



J 4 1 of the bridge?

2 A. And the clearance to the deck
3 portion of the bridge it provided as 643.65, which
4 is a little over 20 feet. So they are provided.

5 Q. Now why are we concerned about
6 what someone is standing on rather than the structure
7 above their head? I take it from your evidence that's
8 what you are directing yourself to, would you explain
9 that please?
10

11 A. I do not understand the
12 question, could you repeat it again?
13

14 Q. You have given deck clearances
15 from the lowest of your Commission's wires. And the
16 decking, which I take it is a decking that somebody
17 is standing on, that's what you mean by decking that
18 somebody is standing on it.

19 A. Right.

20 Q. You have also given clearances
21 to the ceiling if you like, over people's heads
22 walking through the pedestrian overpass. And you
23 have made, and you have referred in connection with
24 that to the possibility of workmen walking on top of
25 the structure. Why are we looking at what people
26 are walking on?
27

28 The layman might have thought or I
29 might think that what you looked at on a pedestrian
30



J 5

1 overpass for the man in the overpass with what was
2 over his head. Can you explain my misunderstanding?

3 A. As I mentioned earlier the
4 two requirements, one is to the clearance to the
5 pedestrian walkway which is the portion that is
6 accessible to the pedestrian. That clearance is,
7 to my interpretation, spelled out as 13 feet in
8 table 2. The portion of the bridge for which the
9 workmen would only be accessible, in my understanding,
10 is that this bridge has a provision for anti-climbing
11 devices which would not permit anyone but the workmen
12 to gain accessibility to the top of the bridge.
13
14

15 Therefore in the CSA Standards the
16 allowance is made for a workman to ensure that if
17 the workman stands on the top of the decking there
18 is still adequate electrical clearance between him
19 and the wire that no harm will come to him.

20 Q. In any event your evidence is
21 that this structure meets both requirements?

22 A. This structure meets both
23 requirements.
24

25 Q. Now, is there a problem with
26 any horizontal clearance provided in the CSA
27 Standards?

28 A. There is a horizontal requirement
29 in the CSA Standards between our structures and the
30



6 1 rail of the nearest siding or the main line.

2 That clearance is provided or is
3 stated in Section 4.5, table 6. The minimum
4 horizontal separation there is stated as 6 feet.
5 That is the nearest portion of our tower which is
6 the, at the elevation of the railway track. And
7 the nearest track itself in -- I have not personally
8 masured any of these myself but under direction from
9 our office we have had measurements undertaken. And
10 I have been told that the clearance provided on all
11 towers is 9 feet 6 inches or better. So that
12 horizontal clearance is met.
13

14 Now there is another requirement in
15 the CSA for horizontal clearance. From the wire the
16 horizontal clearance from the wire does not have to
17 be met if the vertical clearance specified in table
18 2 has been provided. And it is my interpretation
19 that we have provided vertical clearance in excess
20 of what is stated in table 2 which is 27 foot 6
21 inches. Therefore the horizontal clearance between
22 the wire and rail does not have to be provided.
23

24 Q. Is that your personal
25 interpretation or is that your Commission's
26 interpretation?
27

28 A. That is stated in Section 4.4.1
29 of the CSA Standards. And it is my interpretation of
30



J 7 1 that particular section.

2 Q. Now may I respectfully ask you
3 to allow me to file Ontario Hydro's copy of the
4 document, the CSA Standard which you have been using.
5 Because it is not identical with any other, precisely
6 identical with any other copy that is in the court
7 room. So I think the Commission should have the
8 document which the witness has been using.
9

10 I will undertake to you witness, to
11 try to replace it for you.

12 A. Thank you very much.

13 Q. Of course in these circum-
14 stances -- I think the differences are probably
15 immaterial, your staff will know what they are.
16 It is a document which is readily available to anyone
17 in any event. But I cannot go on without having it
18 as an exhibit. So may it be Exhibit CP ---
19

20 THE HEARING PROCESS OFFICER: CP-P.

21 MR. CHALMERS: Thank you.

22 --- EXHIBIT NO. CP-P: Witness' copy of
23 CSA Standards.

24 MR. CHALMERS: Q. And we may have
25 to refer to it again. Yes, when you said decking
26 in your evidence thus far, do you mean the roof of
27 the overpass or the floor of the overpass or --
28

29 A. I may have used them
30



J 8 1 interchangeably, sorry about that. I think I have
2 used them interchangeably, I stand to be corrected.

3 MR. CHALMERS: My recollection, Mr.
4 Chairman, is that the context of Mr. Bellows' evidence
5 will show when he means what people are walking on
6 and when he means what the workmen are walking on.
7

8 THE CHAIRMAN: I think they can be
9 segregated in any case mathematically if we take a
10 look at the plans. And so there should be no real
11 confusion.

12 MR. CHALMERS: I believe that to be
13 so.
14

15 Q. Now if, incidentally just for
16 the record, is the sag greater when the outside
17 temperature is more or greater when it's lower or
18 does that make a difference? You know, the air
19 temperature.
20

21 A. Under normal conditions I
22 guess you would say the temperature increases the
23 sag of the conductor increases but not necessarily
24 so in all cases. Because the temperature and the
25 conductor is, as I explained earlier, mathematically
26 related to the number of amperes flowing in the
27 conductor. And the number of amperes flowing in the
28 conductor determines the temperature of the conductor
29 and thus relates to what sag will be determined.
30



9
1 Q. Well if any, in any event if
2 the clearances were judged to be inadequate, what
3 would be done? If the sidings, and you have been
4 sitting here during this hearing, you are aware that
5 this hearing is about the construction of a, or the
6 operation on a couple of sidings.
7

8 A. That is correct.

9 Q. If it develops that there
10 were a problem in relation to the clearances and the
11 adequacy of the clearances of the wires over the
12 siding or some other danger posed by the existence
13 of the power line adjacent to the siding, what would
14 Hydro do?
15
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Bellows, dr.ex.
(Chalmers)

1 A. Hydro will undertake to
2 rectify the situation so that the problem that
3 exists would be repaired and that the clearance that
4 would be provided would be that stated in the CSA
5 Standards or better.

6 Ontario Hydro undertakes to construct,
7 design and operate its transmission facilities in
8 accordance with the criteria stated in the CSA
9 standards.
10

11 Q. What would Ontario Hydro's
12 alternatives be if they wanted to solve any
13 problems such as this?

14 A. We would raise the adjacent
15 structures if the clearance was a problem or we
16 could possibly add modifications to the existing
17 structure to increase its height.
18

19 Q. And is the line on CP
20 right-of-way ?

21 A. Yes. The line is on CP
22 right-of-way.

23 Q. Do you have the Commission's
24 copy of lease with the CP with you?
25

26 A. Yes, I do.

27 Q. You have produced to me a
28 xerox copy of a document in two pages being an
29 agreement between Canadian Pacific Railway Company,
30



K-2 1 under the former Corporate name and Hydro-Electric
2 Power Commission of Ontario dated a date in 1950. I
3 am sorry. It is in three pages and it was
4 apparently executed on behalf of both parties and
5 apparently bearing various approvals.

6 Does this lease provide for the
7 removal of the towers at the request of Canadian
8 Pacific?
9

10 A. Yes, it does. We are
11 obligated to remove the towers from the right-of-way
12 given three months' notice in writing by the CP.

13 Q. And the paragraph number ?

14 A. It's paragraph 11.

15 Q. Thank you.

16 And might that be the next exhibit,
17
18 please?

19 THE HEARING PROCESS OFFICER:

20 Exhibit CP-Q.

21 --- EXHIBIT NO. CP-Q: Three Page Document
22 being an Agreement between
23 Canadian Pacific Railway
24 Company and Hydro-Electric
25 Power Commission dated in
26 1950.

26 Q. Now having used the Hydro
27 ones I assume I can obtain others and distribute
28 them otherwise I might have to borrow it back for
29 reproduction. Now, is there any role that Hydro
30



1 is prepared to play in supervising the control of
K-3 2 the external maintenance of an overpass such as
3 shown in CP-A-(A)?

4 A. Yes. We would request CP
5 that at any time should their workmen be engaged in
6 the maintenance of the elevated portions of the
7 pedestrian walkway to notify us and we would provide
8 safety supervision for the workmen who would have
9 to climb to the top of that structure to ensure that
10 no harm would come to the individual.
11

12 Q. Is that structure grounded in
13 any way?

14 A. Yes.

15 Q. The proposed overpass?

16 A. Yes. One of our requests
17 to the consulting firm was that the structure be
18 bonded and grounded in accordance with our
19 requirements to ensure that there would be no
20 potential rise on the structure which would present
21 a hazard to the pedestrians other on the structure
22 or approaching to the structure in the event of a
23 failure of one of the conductors if it happened to
24 fall on the structure.
25
26

27 This bonding/grounding system would
28 ensure that the person would be safe and would not
29 experience any harmful hazard.
30



4
1 Q. And does your examination of
2 the two sheets of Exhibit CP-A-(A) suggest that the
3 requirement for grounding has been met or not?

4 A. There is a note there that
5 indicates that the structure would be bonded and
6 grounded to ensure that there would be a ground
7 resistance less than 10 amps which was what our
8 requirement was to the consulting engineers.
9

10 Q. Yes?

11 A. And in conversations with
12 them he has assured us that when he gets to the
13 details of the drawings we will be asked to comment
14 on them at that time.
15

16 Q. Before we get to the
17 details of the drawings, sir, you have to direct
18 that Powell Siding be used and use that alternative
19 for the overpass. Is there any question in relation
20 to that problem of ground radiant or did you deal
21 with that?
22

23 A. That is part of the grounding
24 and bonding system, yes.

25 Q. Thank you. Now what would
26 happen if a wire, any one of the six wires at any
27 point beside the siding should fall?

28 A. If one of the wires fell the
29 first grounded object that it would approach, there
30



1 would be an electrical arc between the wire and
2 that object and immediately our protective
3 equipment which is located in the transformer
4 station on Walker Road and also at the generating
5 station at Keith would sense that there has been
6 what we term a hydro fault condition and the power
7 would be disconnected from this particular line.
8

9 The protection is set to operate in
10 .66th of a second in the best conditions. We have
11 back-up system protection if that the primary
12 protection fails the secondary protection provides a
13 back-up.
14

15 If the primary -- if something
16 happened to the primary protection and it failed to
17 operate the second protection would then trip the
18 circuit out and the clearing time or the time it
19 would take to disconnect the power in that case
20 would be 1.43 seconds.
21

22 Q. What is the nature of the
23 arc? Is that a great flash of flame or something
24 of that nature? Would you describe it, please?
25

26 A. I have never experienced one
27 myself but I would say it would be a fairly noisy
28 bright discharge.
29

30 Q. And what would happen to it
as it struck something? It would go somewhere I



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Bellows, dr.ex.
(Chairman)

take it?

A. I mentioned earlier the grounded object that it approached whether it be a ground -- the ground itself or a tower, part of our tower or some other object. The current from that fault condition would take the path of least resistance to the ground.

Q. I suppose first the flash from the arc and secondly, the wire itself, if they fall on, say, a tank car containing propene or something inflammable -- a railway tank car containing flammable substances, what would happen (a) in respect to the arc and (b) in respect to the wire?

A. The railway car being a metallic object would be the best path to ground to the rails. Therefore the arc would flash to the car and the current that discharges would discharge through the walls of the car and through the wheels down to the rails to the ground.

The conductor -- I don't imagine -- there would just be a black mark where the discharge took place. The rapidity of the protective equipment is that way to reduce the amount of damage to both the conductor and any equipment should a fault occur.

Q. Now what have you to say



L-7 1 as to the risk of derailment and the extent of the
2 problem which arises?

3 A. I guess in past testimony
4 witnesses have indicated the possibility of a
5 derailment is always there. We construct lines
6 throughout Ontario and along railways and we
7 consider that the probability of a derailment very
8 minimal. In fact, I don't think we have ever
9 experienced a derailment that has had any effect
10 on the towers that we have paralleling any of the
11 railways in Ontario.
12

13 We consider it a safe place to be.
14

15 Q. Whose problem do you regard
16 that risk as being?

17 A. Ours.

18 Q. And what are your present
19 precautions?
20

21 A. We feel that as long as we
22 provide adequate clearance from the rail itself to
23 our tower line we are willing to live with the
24 very low probability of a derailment in the area of
25 the line that we constructed.

26 Q. Now how frequent are the
27 towers? How would you describe the number of towers?
28 Numerous or few in this --
29

30 A. Well --



L-8

1 Q. In this particular stretch?

2 A. In this section of line they
3 are more numerous than generally speaking. Say if
4 you were driving along the 401 east of the city I
5 would think that you would be able to draw a
6 comparison with the lines that parallel 401 in that
7 their frequency -- they are spaced further apart
8 than the towers here.

9
10 This particular span in question at
11 the crossing is 485 feet approximately in what we
12 refer to as span length.

13
14 Generally our towers throughout
15 Ontario are spaced at approximately 1,000 feet
16 distance from one another so in a sense I guess you
17 could say this provides a little better level of
18 security than one of our normal lines would.

19 Q. Now how would you describe
20 this stretch of line in general?

21 A. Since the line provides
22 power to the core area of Windsor we consider it
23 essential to the power grid in the Windsor area.

24
25 If anything happens to it there would
26 be an outage to a good part of the area surrounding
27 the two stations that I mentioned earlier, Essex
28 and Crawford.

29 Q. And how does the strength
30



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Bellows, dr. ex.
(Chalmers)

and security of this particular line compare with
other Ontario Hydro lines -- at this particular
place -- compare with other Ontario Hydro lines with
similar kilo voltage?

- - -



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A. As I mentioned earlier, I would think the security here would be equivalent or better than our normal hydro line in other areas in Ontario.

Q. You are aware you will be -- it will be necessary for you to return for cross-examination next month?

A. Yes.

MR. CHALMERS: Can this witness be excused?

THE CHAIRMAN: I have one question I would like to ask before he leaves the stand.

Mr. Bellows, you gave us some nice straightforward evidence about one of your conductors falling a rail car, a propane gas rail car and you indicated the electricity would arc from the conductor to the car and that electricity would then flow down through the car, through the wheels onto the rail and then to the ground, but you never told us if it would set the car on fire and result in any other worrisome result.

I wonder if you could cover that aspect?

THE WITNESS: I really do not know. We have never done any tests by Ontario Hydro to see what effect this would have and I do not know



L 2 1 of any other utilities that have done this kind of
2 testing, so I really cannot give you an answer as to
3 what would happen.

4 THE CHAIRMAN: I see. Our curiosity
5 will have to live on at least for the moment.

6 MR. CHALMERS: Have you -- can you
7 assist the Commission as to why such tests have not
8 ben conducted?
9

10 THE WITNESS: My own opinion would
11 be it is felt probably the hazard of the car blowing
12 up is very, very -- because of the mass of metal that
13 you have there, the current distributes through all
14 portions of the car to ground.
15

16 There probably would not be a puncture.

17 THE CHAIRMAN: Would there be any
18 similiarity between the arc discharging from the
19 conductor to the propane car and lightning striking
20 an aircraft in flight from an electrical point of
21 view?
22

23 THE WITNESS: Yes. The magnitudes
24 are considerably different. As far as the effect I
25 really would not know.

26 THE CHAIRMAN: Aircraft get struck
27 regularly you know by lightning without any ill
28 effects.
29

30 THE WITNESS: Yes. I really do not



3 1 feel qualified to give you an answer on that.

2 THE CHAIRMAN: Thank you.

3 I shouldn't say all aircraft get
4 struck regularly with no ill effects, but the modern
5 ones get struck fairly frequently with no ill effects.
6

7 MR. CHALMERS: As I understand your
8 evidence, a wire falling on a propane car, the
9 current whether arced towards it or from the wire
10 would be carried to ground in the absence of a
11 puncture.

12 THE WITNESS: Well, the current
13 would take the path of least resistance which would
14 be the metal in the car and it would be -- it would
15 distribute itself through the walls of the car through
16 the carriage down to the rails and to ground. It is
17 unlikely that the current would go through the
18 propane because the resistance of the propane is
19 considerably higher than the resistance of the tank
20 car walls which would be a metallic substance.
21

22 MR. CHALMERS: Does the Commission
23 have any other questions of this witness?
24

25 THE CHAIRMAN: No. I think we can
26 now excuse him.

27 I note it is 12:30 so we will now
28 adjourn until 2:00.

29 --- Luncheon adjournment
30



AA.1
PC/ko

1 --- On resuming

2 THE HEARING PROCESS OFFICER: Order
3 please, order.

4 THE CHAIRMAN: Good afternoon. Please
5 be seated.

6 There are one or two items to which
7 the council would like to address itself before the
8 evidence re-commences this afternoon.

9 The first item that I would like to
10 cover is the date of re-commencement of the hearing.
11 We have consulted among ourselves and made some phone
12 calls to Ottawa checking our schedule, our availability,
13 and we decided we will resume hearings on the morning
14 of Monday, January 16, at 10:00 a.m. in this same
15 building or, if there is a change of building, in a
16 building to be specified in the Notice which we will
17 give to all parties of record. That is the first
18 item.

19 The second item that I wish to bring
20 up involves what I consider to be an error that I
21 made this morning in suggesting to you, Mr. Chalmers,
22 you should provide copies of some documents to the
23 two counsel that have withdrawn. On reflection I
24 think that was improper and, well, improper on my
25 part since they are no longer counsel of record or
26 that they may return and I feel certain if they
27
28
29
30



1 decide to do that and wish to notify us between now
2 and the time of resumption, we could then arrange to
3 provide them with documentation that they may require.

4 MR. CHALMERS: Canadian Pacific
5 would be glad to provide Mr. Fisher and Mr. Paroian
6 with essentially any documents that have been proved
7 here, which copies are available at reasonable means,
8 as they will be I am sure.

9
10 As far as the return of Mr. Paroian
11 and Mr. Fisher, as indicated by my remarks about
12 possible other counsel may be retained to replace--
13 by the individuals who replace counsel who have
14 withdrawn, there may be a legal question.

15 The position may well be that you have
16 a discretion to let them come back to the case from
17 which they have withdrawn and you may choose to
18 exercise in their favour. I frankly have been
19 applying myself to putting in this evidence in chief
20 that I would lead this week and have not been looking
21 up law, nor has anyone else been looking up law.

22
23 THE CHAIRMAN: No, nor have I quite
24 frankly.

25
26 MR. CHALMERS: You may or may not --
27 or, with deference, you may not have that discretion.
28 They may -- in light of that I have always practiced
29 law on the basis if I withdrew from a case I could not
30



1 go back and that might be the position -- it may not
2 be. You may have a discretion and I do not know what
3 my position will be. I have not taken instructions
4 from my client over what my position should be, if I
5 have the right to take one, on whether I would oppose
6 having them back or not. It may well be that I would
7 not oppose. It may well be that you have the
8 discretion and it may well be that you do not.

10 THE CHAIRMAN: It may well be that
11 an administrative tribunal ---

12 MR. CHALMERS: Yes.

13 THE CHAIRMAN: --- is not stuck with
14 such strict rules of court.

15 MR. CHALMERS: Under the popular
16 LaRoche case you are the masters of your own
17 procedure even if you have not the rules.

18 THE CHAIRMAN: Well, anyway, since
19 they had withdrawn it might appear improper for me
20 to suggest that you are obligated to do this and I
21 wanted to clear the record on that point.

22 MR. CHALMERS: Thank you.

23 THE CHAIRMAN: It was suggested to
24 me, Mr. Chalmers, that you -- I raised the point this
25 morning of the comparability of these sidings with
26 other sidings in the system across Canada. I under-
27 stand that your witness to cover that point would not
28
29
30



1 be available until tomorrow.

2 MR. CHALMERS: That is right, sir.

3 THE CHAIRMAN: Now I assume the
4 evidence he would give would be extremely brief and
5 very easy to understand and that being the case, I am
6 proposing that we do not hear this as it is an
7 imposition to bring everyone back tomorrow morning
8 for one witness which may only take five minutes.

9 MR. CHALMERS: I do not undertake that
10 you will not be here tomorrow morning. I am trying
11 very hard to see that you are not.

12 THE CHAIRMAN: Well, if we are here
13 tomorrow morning we will hear him and if we can
14 complete everything else except that tomorrow, then
15 I suggest he be the first witness when we re-convene
16 in January.

17 MR. CHALMERS: Well, he has to be
18 brought from out of Windsor and he has got instructions
19 to travel now and on the basis of what you have just
20 said sir they be withdrawn -- what you said first they
21 be withdrawn now he would have to come here in case
22 Mr. Williams were still giving evidence when you arose
23 at 5:00, I do not think he will be but shall we have
24 him come anyway?

25 THE CHAIRMAN: Well, once again I
26 hate to have him come here if we are not going to
27



1 hear him.

2 MR. CHALMERS: Well, as my Railway
3 client seems to say, you are the boss.

4 THE CHAIRMAN: Well, let's have him
5 come anyway.

6 MR. CHALMERS: Very good.

7 THE CHAIRMAN: The other thing I
8 thought I should mention is following him, if we do
9 not hear him this time, following him we would
10 propose to put Mr. Hibbard on the stand before the
11 members of the public, before cross-examination and
12 before the members of the public put in their
13 opposition to your Application.
14

15 MR. CHALMERS: That sir -- may I
16 ask questions?

17 THE CHAIRMAN: Certainly.

18 MR. CHALMERS: I have refused other
19 people cross-examining but that raises another
20 question. In a normal trial, as you know, had there
21 been cross-examination between these witnesses the
22 need for additional witnesses by Canadian Pacific
23 might have shown up and we might have been scrambling
24 ourselves.
25

26 Now once cross-examination takes place
27 it may become very, very apparent that there is a need
28 for additional quite available evidence in chief by
29
30



1 Canadian Pacific which in turn, of course, must be
2 cross-examined upon which we would have had had the
3 proceeding been the ordinary one of a man examined in
4 chief, a man cross-examined and a man re-examined and
5 on you go.

6
7 THE CHAIRMAN: No, I understand the
8 purpose and to put your mind at ease, as I mentioned
9 previously, this is an administrative tribunal and
10 if we make any mistake in the light of admitting
11 evidence I think it is better to make the mistake
12 in hearing too much and make sure you cover the whole
13 ground than to get too technical about the rules and
14 not get in enough, because that would really end up
15 and injustice so the Applicant would have the normal
16 right of any Applicant in putting in his case to
17 determine whether you require further evidence
18 following cross-examination. And if you feel that
19 you do you will have the right to put it in then of
20 course.

21
22
23 MR. CHALMERS: Thank you very much
24 sir.

25 THE CHAIRMAN: Now, the final thing
26 that I wish to speak to, this morning I indicated we
27 had some questions that we proposed to put to the
28 Applicant. I discussed this matter with my colleagues
29 and we have more or less come to the conclusion some
30



1 of them at least are in the nature of cross-
2 examination and we would prefer not to divulge our
3 questions today but wait until the time of cross-
4 examination.

5 MR. CHALMERS: Very good, sir.

6 If there is anything we can assist
7 you with with additional evidence?
8

9 THE CHAIRMAN: Well, at the break this
10 afternoon we will go through our list of questions
11 and see if there are some that do not fall into that
12 category that we should really give you warning of.

13 MR. CHALMERS: Very good sir.

14 THE CHAIRMAN: If there are some we
15 will announce them before we break today.
16

17 MR. CHALMERS: I am very much obliged.

18 THE CHAIRMAN: I think that covers it.

19 MR. CHALMERS: Yes sir.

20 The next item I would like to tender
21 a number of documents which, in my submission, speak
22 for themselves and may be admissilbe under various
23 principles, particularly in an administrative tribunal
24 proceeding, all of which were exhibits in the last
25 round. Now, I have endeavoured all the way to conduct
26 a brand new hearing, a fresh hearing, but there are
27 pieces of paper, some of which are relatively
28 essential which you had before and as I read the
29
30



1 transcript, most of them were not proved in any
2 great strictness. So normally there is a witness
3 on the stand and I would like to tender them as
4 exhibits and that is one of the reasons I suggested
5 to your Process Hearing Officer that we use the A's
6 and B's and C's because these exhibits have numbers
7 CP-1 and so on and they have nothing to do with this
8 hearing.
9

10 If I may describe what they are and
11 you sir naturally will rule as you see fit.

12 The first former exhibit, CP-1, is
13 certain documents having to do with a history of the
14 Parent Avenue crossing.
15

16 The first on top, there is a plan
17 showing the right-of-way sketch showing the right-
18 of-way attached to a deed which appears to be a
19 Xerox copy of a duplicate registered deed which would
20 be admissible under the Registry Act of Ontario and
21 my friend, Mr. Hillmer, can get the section if that
22 is necessary. And attached thereto are what appear
23 to be portions of plans and a letter from Mr. G. A.
24 Walker to the Secretary of your predecessor by the
25 Board of Transport Commissioners dated December 27,
26 1943 in regard to this crossing which reads in part
27 as follows:
28
29
30

"Provided the entire expense



1 in connection with the installation
2 and maintenance of the proposed
3 pedestrian crossing is borne by the
4 Applicant, (and that was the Township
5 of Sandwich East, now defunct) and
6 provided that a guard fence is erected
7 on either side of the proposed
8 crossing, leading from the right-of-
9 way fence to the standard clearance
10 point on each side of the track, which
11 should also be at the expense of the
12 Municipality, this Company will have
13 no objection (and it is made to the
14 railway company as it then was) to
15 the application. There is a large
16 amount of trespassing on Railway
17 property in this vicinity and the
18 construction of the proposed pedestrian
19 crossing will, it is felt, alleviate
20 this condition."
21
22
23

24 And, the significance of that letter
25 will be plain to the Panel. And finally there is an
26 agreement made in 1943 between the Township -- the
27 Corporation of the Township of Sandwich East and the
28 Corporation of the City of Windsor. I believe the
29 purport is the merging of Sandwich East as it relates
30



1 to the crossing reads that:

2 "Notwithstanding the concurrence
3 of the City in the establishment of a
4 crossing, the right of the City to use
5 certain lands immediately to the north
6 shall deem to be unimpaired and so on."
7
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BB-1 1 I am not at all sure it is completely
NGeg 2 relevant but I would rather tender all of CP-1
3 that appears, of the previous hearing material
4 drawing anything out of it.

5 Then there is a by-law of the
6 Corporation, a xeroxed copy of the by-law of the
7 Corporation of Sandwich East, dated September 7th,
8 1943, authorizing an agreement with the City of
9 Windsor in that form. It relates to the land
10 in the case of this crossing.
11

12 Then there is more importantly Order
13 No. 6 which is an Order in your records I am sure,
14 Order No. 64517 of the Board of Transport
15 Commission dated Thursday the 24th day of February,
16 1944, authorizing the Applicant, the Township of
17 Sandwich East, to construct and maintain at its own
18 expense -
19

20 "... the pedestrian crossing of the
21 Canadian Pacific Railway at Parent
22 Avenue leaving from the Township of
23 Sandwich East to the City of Windsor
24 in the Province of Ontario as shown
25 on the said plan and profile."
26

27 It sounds as if the line, the CP right-of-way was
28 the boundary. And then there is a general Order
29 of the Board of Transport Commission regarding
30



1 standard regulations with respect to the construction
2 of crossings at grade which on reflection may have
3 very little to do with this case. But I would
4 tender former Exhibit CP-1 as Exhibit --

5
6 THE HEARING PROCESS OFFICER: CP-R
7 Mr. Chalmers.

8 MR. CHALMERS: CP-R. Of course I
9 have drawn this from the old exhibit file and I
10 have one existing copy.

11 THE CHAIRMAN: I think we will accept
12 that, Mr. Chalmers, subject to our considering
13 whether there is any problem with it. I cannot
14 personally see any problem at the moment because I
15 am reasonably certain that all of that documentation
16 is part of our official records.

17
18 --- EXHIBIT NO. CP-R: All of former exhibit CP-1.

19
20
21
22 MR. CHALMERS: Yes, I think it is
23 at the Registry Office so that it might be with some
24 certificate from the Registrar -- would be entitled
25 to prove it rather than just as I handed it out.

26
27 The second item, if the panel wishes
28 to turn it down I am in the panel's hands. I do
29 not have the photographer at the moment, I may be
30 able to obtain him. It is what appears to be an



BB-3

1 aerial photograph, it is from Exhibit CP-2. It
2 appears to be an aerial photograph of the crossing
3 and I found it useful in understanding this case
4 in preparation. There may be one copy of my own
5 that I used and has possibly been marked with
6 discussions about the case in the room.

7
8 There are labels of Memorial Park
9 which we have been told has changed in name now,
10 South Pacific Street, Walker Road, Howard Avenue.
11 And probably if anything else it would be of
12 assistance to members of the public because you
13 can plainly see both the school and the Old Folks
14 Home and various establishments they are relying on.
15 And you can see the Chrysler establishment that
16 we are relying on.

17
18 I imagine you are probably familiar
19 with this map. And I would like to put back in
20 CP-2.

21 THE CHAIRMAN: You are providing
22 copies of all of these, of course?

23
24 MR. CHALMERS: Well -- I will have
25 to first, CP-1 I will have to withdraw and copy in
26 some fashion. I do not know if Mr. Geddes can still
27 supply me. CP-2, excuse me. The copy that is
28 provided to the public of CP-2 would not be quite
29 as nice as this. There will be lines on it when
30



BB-4

1 it's done in sections and that sort of thing.

2 THE CHAIRMAN: Well if it's
3 understandable it should serve the purpose.

4 MR. CHALMERS: Yes, I think it is
5 rather useful and I think it would be useful for
6 them for example. That would be CP--?

7 THE HEARING PROCESS OFFICER: CP-S.

8
9 --- EXHIBIT NO. CP-S: Aerial photograph of the
10 crossing taken from former
11 exhibit CP-2.

12
13 THE CHAIRMAN: I must say that I
14 do not see any problem with that either, from the
15 point of view of us accepting it. Because you can
16 go the Department of Mines and Technical Surveys
17 and have a photo mosaic made up, it's the same
18 result.

19
20 MR. CHALMERS: Well, I suspect so.
21 This one is handy.

22 The next one may present a little
23 more of a problem. Exhibits CP-3, 4 and 5 are
24 pedestrian counts on days named.

25
26 THE CHAIRMAN: How old are they?

27 MR. CHALMERS: Well they are from
28 the time of the last hearing, from 7 to 5. The
29 first date that appears on these is May of '75 and
30



BB-5

1 it goes on through June of '75. They seem to be in
2 May and June of '75. And they purport to record the
3 times of crossing of individuals and groups of
4 persons through north to south and south to north
5 over Parent Avenue crossing. And somebody has
6 written at the bottom on certainly the first day of
7 the case -
8

9 "I certify the above entry is a true
10 count of pedestrians crossing the
11 tracks at Parent Avenue."

12 THE CHAIRMAN: Who did the counts?

13 MR. CHALMERS: Pardon me?

14 THE CHAIRMAN: Who did the counts?

15 Were they available as witnesses?
16

17 MR. CHALMERS: They were not called
18 on the last round and I do not know. And if the
19 Commission doesn't --

20 THE CHAIRMAN: Well, I, my first
21 reaction is that, you know, they are a couple of
22 years old and may not be -- perhaps they have
23 doubled, perhaps nobody crosses any more, who knows.
24 But of course if you put them in there's nothing to
25 stop the opponents of the Applicant doing a new
26 count to show whether they are right or wrong?
27

28 MR. CHALMERS: Certainly, it may be
29 that we should have done so but --
30



BB-5

1 THE CHAIRMAN: On that basis, you
2 know, on the basis that you have given everybody
3 lots of warning, it is a good opportunity to
4 corroborate or refute what those exhibits show I
5 suppose. No one is really harmed by it.
6

7 MR. CHALMERS: No, there will be about,
8 if there are entries on every page which there are
9 not, there would be 600 pages. I imagine there are
10 a few hundred pages of these.

11 THE CHAIRMAN: I hope you understand
12 that since no one is here to prove their accuracy
13 that goes to the weight that we give them.
14

15 MR. CHALMERS: Oh it does, indeed.
16 And I debated whether to trouble you with them but
17 it's some idea of the volume two years ago of the
18 pedestrian traffic over the crossing, it certainly
19 exists and I don't --
20

21 THE CHAIRMAN: Who filed them in the
22 first place?

23 MR. CHALMERS: They are CP-3 and 4,
24 so presumably they were filed by --

25 THE CHAIRMAN: By CP?

26 MR. CHALMERS: -- Mr. Geddes who
27 conducted the previous hearing for CP.

28 THE CHAIRMAN: Perhaps I might take
29 a moment to consult my colleagues.
30



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EE-7

1 MR. CHALMERS: If you care to look
2 at CP-3 and 4 and possibly 5 with a view to
3 considering ---

4 THE CHAIRMAN: Mr. Chalmers -

5 MR. CHALMERS: Yes sir.

6 THE CHAIRMAN: We have considered
7 the matter and in view of the antiquity of the
8 records, they are two years old, problems of trying
9 to make copies of them for the public to look at.
10

11 MR. CHALMERS: You are doing me a
12 favour.

13 THE CHAIRMAN: And the argument that
14 if there must be a crossing there, maybe it does
15 not matter all that much whether there are 50 people
16 a day or 200 crossing, it still has to be there.

17 So I think we will refuse to accept
18 that.
19

20 MR. CHALMERS: Actually I am
21 obliged to you, sir. I thought I should tender it,
22 I agree it is not essential. I am particularly
23 influenced by presenting this material -- by the
24 comment that the case should be fully presented.
25

26 And the next item I would tender
27 from witnesses not available, which relates to
28 something that has been raised by Dr. Henderson was
29 Exhibit CP-13. It's a letter dated August 21st, 1974
30



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BB-8

1 from the Chessie System to CP Rail, Eastern Region.
2 It is addressed to Mr. Hill, written by Mr. K. C.
3 Morriss, General Manager of Operations of the
4 Chessie System. He is not a person under my control.

5 "With reference to your letter ...
6 regarding Run-Through Train -
7 Rougemere - Powell - Toronto,
8 enclosed is the duplicate copy,
9 properly endorsed by me this
10 date, indicating our acceptance of
11 the arrangements outlined."
12

13 And this is a letter to Mr. Lichty
14 from the General Manager of Operations and
15 Maintenance, Toronto, CP. But the point of it is,
16 what makes it effective is it is signed by,
17 countersigned by Chessie concerning the terms of our
18 arrangements for a two-way run-through train
19 service between Chesapeake & Ohio's Rougemere yard
20 and Canadian Pacific's Toronto yard. And it starts
21 out, the very first provision is that the
22 arrangements will apply whether or not the service
23 is provided by the way of Pelton Junction, as you
24 recall Mr. Nutkins' description of that triangular
25 round about way, the way of the Essex Terminal
26 Company trackage. You may recall Mr. Nutkins'
27 description of the use of the Essex Terminal
28 Railway Company trackage and there is some normal
29
30



1 commercial agreement about terms of indemnity and
2 property and obviously indicates certain of the
3 terms on which there will be a run-through arrangement
4 between CP and C&O.

5 And you may wish to have that,
6 persons cross-examining Mr. Nutkins may wish to have
7 it. I do not think it could have gone in with him.
8 If the Commission does not want it I will withdraw it.
9 Perhaps you might like to look at this as I enter it.

10 THE CHAIRMAN: From whose custody
11 is it coming?

12 MR. CHALMERS: It is coming from
13 your custody, sir. It was Exhibit CP-13 in the
14 last hearing.

15 THE CHAIRMAN: Surely what I am
16 trying to find out, surely somewhere in CP's
17 Corporate records those documents reside. And the
18 normal way of proving it would be to produce someone
19 from CP to say that this forms part of our Corporate
20 records and that we received this letter and that
21 this is an agreement between CP and Chessie.

22 MR. CHALMERS: Yes, well that has
23 not been done and that person is not here.

24 I do not propose to call the
25 individual who signed this.

26 THE CHAIRMAN: I am not sure, I



BB-10 1 shouldn't be -- of course I am not giving you legal
2 advice. The thought occurred to me that the evidence
3 of Mr. Nutkins made it reasonably clear that on a
4 day to day basis you are operating with the Chessie
5 System on that arrangement. I think that infers,
6 if nobody proves to the contrary, there must be some
7 sort of a deal.
8

9 MR. CHALMERS: That's right. I was
10 just going to say just about exactly that. Again
11 I am not, this is just completeness. I am not
12 terribly concerned. It is perfectly clear that
13 what this meant is that it is really quite clear
14 from the evidence of Mr. Nutkins that there is a
15 run-through arrangement between CP and Chessie.
16 And this sort of evidence may be very important in
17 the CP intervention in the Chessie application to
18 run over Conrail track and which somebody else is
19 going to take next month.
20
21

22 THE CHAIRMAN: Well why don't you
23 put it in subject to us considering the propriety
24 of our accepting it?

25 MR. CHALMERS: That's fine. If you
26 turn it down my submission would be exactly along
27 the lines of what you, sir, have just said.
28

29 Would you like to mark it some
30 special way? It is not necessarily approval.



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11 1 THE CHAIRMAN: Well let's mark it
2 for identification and I will leave it up to Mr.
3 MacDonald to decide how to do that.

4 MR. CHALMERS: CP-Z.

5 --- EXHIBIT NO. CP-Z: Document consisting of
6 Two Pieces of
7 Correspondence the
8 first dated August 21st,
9 1974 is addressed to Mr.
10 Hill and the second
dated August 17th, 1974
addressed to Mr. E.R.
Lichty.

11 THE CHAIRMAN: As I said before I
12 prefer to have too much information rather than
13 not enough.
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CC.1
AJC/ko

Mr. James McGown.

JAMES McGOWN, Sworn

THE HEARING PROCESS OFFICER: Would you state your name and spell your last name for the record, please?

THE WITNESS: James McGown. The last name is spelled M-c-G-o-w-n.

THE HEARING PROCESS OFFICER: And your address, sir?

THE WITNESS: I live at 820 Daley Court, Mississauga, Ontario.

THE HEARING PROCESS OFFICER: Thank you.

DIRECT EXAMINATION BY MR. CHALMERS:

Q. Mr. McGown, are you the Regional Mechanical Officer in the Eastern Region of CP Rail?

A. That's correct.

Q. And as such are you the senior officer of the Mechanical Department in that Region?

A. That's right. That's correct.

Q. And are you responsible, therefore, for the maintenance of cars and locomotives in the Region or, if that is wrong, correct me?

A. Basically, yes.

Q. Well is that too much or too



McGown, dr.ex.
(Chalmers)

CC 2

1 little in defining ---

2 A. Well that's correct.

3 Q. In defining your responsi-
4 bilities?

5 A. That's correct.

6 Q. And do you report to the
7 General Manager for Operations and Maintenance in
8 the Eastern Region?
9

10 A. That's right.

11 Q. And you have held that job,
12 those responsibilities, since August '76, is that
13 right?
14

15 A. That's correct.

16 Q. And you have been with
17 Canadian Pacific since 1941, have you?

18 A. I commenced with Canadian
19 Pacific in 1971 -- sorry, 1941 as an Engine Wiper
20 at Kamloops, British Columbia.

21 Q. And then did you go into the
22 Navy following your initial career in Canadian
23 Pacific?
24

25 A. Between 1941 and 1951 I
26 completed schooling. I had a stint with the Navy
27 and also gained my Bachelor of Engineering Degree
28 from the University of McGill in 1951.

29 Q. Did you --
30



CC 3

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A. At the same time I accumulated enough service of locomotive fireman to become a Class Engineman.

Q. I see.

A. The same year.

Q. And did you subsequently re-join Canadian Pacific as a full time employee?

A. That's correct. In 1953 I was promoted to Road Foreman of Engines on the Kootenay and Kettle Valley Division at a time when diesels were being introduced in that territory.

Q. And --

A. And in 19 --

Q. Well just a minute please. Before you leave the job as a Road Foreman of Engines in Kootenay, did you hear the evidence of Mr. Nutkins at this hearing?

A. Yes I did.

Q. And did you hear his description of what a Road Foreman of Engines does?

A. Well --

Q. Or did you arrive too late for that?

A. No. I believe I recall that.

Q. And I don't wish to embarrass you but would your description be any different? It



CC 4 1 would help the Commission if you were to give us your
2 description if it is at all different.

3 A. The purpose of establishing
4 the Road Foreman of Engine position as compared to
5 any other officer classification is for the
6 instruction of enginemen to ensure that they are
7 using the proper train handling practices which are
8 very important in today's concept of railroading with
9 long trains, heavy tonnages where improper handling
10 will cause damage to the locomotives and to equipment
11 and it is also the Road Foreman's duty to make checks
12 on the enginemen that he has educated to ensure that
13 they are obeying the operating practices of the rail-
14 way and the rules and regulations.
15
16

17 Q. And where did you go after your
18 Road Foreman of Engines job and when?

19 A. In 1958 I was promoted to
20 Master Mechanic at Revelstoke on the Revelstoke
21 Division where I was in charge of the mechanical
22 function in that Division reporting to the
23 Superintendent.
24

25 Q. And in 1960 did you go on to
26 Smiths Falls as a Master Mechanic?

27 A. I was transferred to Smiths
28 Falls in 1960 as Master Mechanic and then to Sudbury
29 in 1965 as Master Mechanic.
30



McGown, dr.ex.
(Chalmers)

CC 5

1 Q. And in 1971 were you further
2 promoted?

3 A. In 1971 I was transferred to
4 Toronto as Assistant Superintendent, Motive Power
5 and Rolling Stock.

6 Q. And in August '76?

7 A. In August '76 I became
8 Regional Mechanics Officer.

9 Q. Yes, and are you familiar
10 with the locomotives used by Canadian Pacific?

11 A. Yes sir.

2

12 Q. And are you familiar with the
13 maintenance program adopted by Canadian Pacific for
14 those locomotives?

15 A. Yes sir. Our maintenance
16 program is based on a series of inspections 45 days
17 apart. These inspections are numbered from 1 to 12.

18 Q. And do you have a word for
19 those?

20 A. We call them datals. Number
21 one datal, number two datal, number three datal, et
22 cetera.

23 Q. Right.

24 A. At 45-day intervals. At the
25 end of 12, that is at a year a a half, so then we go
26 back to number one again.

27
28
29
30



McGown, dr.ex.
(Chalmers)

CC 6

1

Q. I see.

2

A. Each datal has a listing of

3

service requirement inspections. This is an

4

inspection of engine components that must be carried

5

out on that particular datal based on manufacturer's

6

recommendations or our past experience, failure rate,

7

wear out rate on parts, climatic conditions in which

8

the locomotives are operating.

9

10

These components may or may not be

11

inspected and serviced on every datal. For instance,

12

the engine intake filters which provide the engine

13

with combustion air. They are checked monthly on

14

every datal and if a minometer reading shows a 12-

15

inch vacuum they are changed out.

16

17

Q. Well is there a different

18

approach to different parts if they are found on

19

inspection, at the appropriate datal interval --

20

if they are found, on inspection, to be defective?

21

What is done?

22

A. If, on inspection, the

23

components are found to be in order they are left

24

in service. For instance rings, piston heads,

25

cylinder heads, cylinder head mechanisms. These are

26

checked every second datal and it is done by opening

27

up the air box of the engine so that you can look

28

right inside. You can see the liners. You can see

29

30



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McGown, dr.ex.
(Chalmers)

CC 7 1 the rings as the engine is barred over by hand. If
2 you find any problems during that inspection on a
3 part that needs change-out, it's changed out.

4 Q. So when you say "change-out"
5 does that mean replacement or --

6 A. Yes. It is replaced with
7 either a new or rebuilt part.

8 Q. Would they be what are called
9 current parts or do I have the wrong description?

10 A. The new parts are currently
11 purchased, in the case of General Motors, from General
12 Motors in La Grange or in Canada. We do rebuild
13 liners with a chrome process. We also rebuild
14 cyclinder heads but there is a limit to the amount
15 of re-chroming or rebuilding or refurbishing that
16 you can do with an item and bring it back to its
17 original specifications, so at that time you scrap
18 that object and you buy a new component.

19 Q. And the new component -- will
20 that be a current ---

21 A. A current production line
22 component from General Motors which, in some cases,
23 could be of a superior design to the original part
24 that you are replacing.

25 Q. Now are there other inspections
26 besides the piston liners and piston heads where you
27
28
29
30



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McGown, dr.ex.
(Chalmers)

CC 8 1 don't replace with current parts?

2 A. We overhaul injectors. Fuel

3 injectors.

4 Q. I see.

5 A. But again, we purchase a great

6 number of them every year.

7 Q. Well to summarize, you replace

8 what you have to and repair and rebuild when you don't

9 have to. Is that fair?

10 A. That's fair.

11 Q. Now you have described the

12 procedure for 12 datals. Is there any particular

13 significance to the 12 datal period?

14 A. No. That period of 12 datals

15 has evolved through our experience with diesels.

16 Back in the introduction days of diesels I think we

17 were down to at one time -- we were doing it almost

18 weekly and as we learned and as we the product became

19 better this period was extended where we are now at

20 45 day datals.

21 THE CHAIRMAN: Mr. Chalmers, I don't

22 like to interrupt but I would appreciate it, the Panel

23 would appreciate it, if you could indicate to us what

24 this maintenance program -- what connection that has

25 with the problem that we are faced with here?

26 MR. CHALMERS: Well the point of this

27

28

29

30

McGown, dr.ex.
(Chalmers)

CC 9 1 evidence is to give the factual background for what,
2 to a limited extent, the next witness, Dr. George
3 Wilson, in regard to noise is going to say and much
4 more extensively what the final witness, Mr. Hugh
5 Williams, will say in regard to other forms of
6 possible pollution from diesel engines.
7

8 THE CHAIRMAN: Okay.

9 MR. CHALMERS: This is a factual
10 foundation for the pollution evidence of Canadian
11 Pacific.

12 THE CHAIRMAN: All right. In that
13 context I understand.
14

15 MR. CHALMERS: What I am up against?

16 THE CHAIRMAN: What you are up against,
17 yes.

18 MR. CHALMERS: I'm sort of reluctant
19 to make speeches about it but that's what's happened.
20

21 Q. All right. What I was direct-
22 ing you to, Mr. McGown, and I may be wrong, because
23 the two figures don't add up. You have got datals
24 1 to 12 and if the periods are 45 day periods it
25 would get you to -- did you say two years?

26 A. A year and a half.

27 Q. A year and a half?

28 A. Yes.

29 Q. Now at the end of that period --
30



McGown, dr.ex.
(Chalmers)

CC 10 1 is there any special significance in coming to the
2 end of the 18 month period? Do you do anything
3 special at that time?

4 A. No.

5 Q. You don't?

6 A. No. Nothing at that time.

7 We go back to the first datal and go through the
8 same series of 12 --
9

10 Q. Inspections?

11 A. Inspections.

12 Q. But there is a time --

13 A. After five years --

14 Q. Something happens?

15 A. Yes.

16 Q. What happens?

17 A. The engine gets a complete
18 overhaul. It goes into the main shop.
19

20 Q. The main shop is hwere?

21 A. In the Angus shops or the
22 Weston shops in Winnipeg where the components are
23 rebuilt and it comes out almost completely rebuilt
24 you might say in almost new condition.
25

26 Q. And what sort of parts are
27 used in that process of rebuilding, or do you know?

28 A. Well --

29 Q. Are you familiar with that
30



McGown, dr.ex.
(Chalmers)

CC 11 1 process?

2 A. Well I am not familiar with
3 that process, but I know when they do that rebuilding
4 they would do exactly what we would do in Toronto.
5 They would change liners. In fact at the present
6 time we are upgrading engines. Take some of the
7 older engines. They are refitted out with new parts
8 which, as I said previously, are sometimes superior
9 to the original parts.
10

11 Q. Now how about injector
12 maintenance? Have you told me all that there is to
13 tell about that?
14

15 A. Injectors are changed out on
16 an annual basis regardless of condition. The
17 injector timing is checked every sixth datal. The
18 injector rack settings are checked every sixth datal.

19 We find that those settings are, you
20 might say, -- they very seldom change.

21 Q. When you say they are changed
22 every year, what do you change them with or for?
23

24 A. They are replaced by rebuilt
25 injectors or by a new one. If we haven't got the
26 rebuilt type available --

27 Q. Who rebuilds them?

28 A. They are rebuilt in the main
29 shops in Angus. I have no way of knowing what the
30 rejection rate is on those.



D.1
C/ko

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Q. And do you, in any of your engines, use something called at low sac injector?

A. Yes. We use that injector, a low sac injector, in our engines or if it is an injector developed by General Motors back around 1972.

Q. Well, now, I want to keep you careful as I can. If you have a Montreal Locomotive Works engine, can you use a General Motor low sac injector in those?

A. I am sorry. I should have clarified that. General Motors.

Q. I see. And do you know when the low sac injector was introduced by General Motors?

A. I think about 1972.

Q. And does that tell you anything in terms -- well, to answer this question, does it have any significance, that date which is merely six years ago, does it have any significance in relation to the trembleance or otherwise of low sac injectors in your GM diesel engines?

A. Yes. There is a relationship there. The low sac injector cuts down a smoke emission by pretty close to I believe 50%.

MR. WOODARD: Mr. Chalmers, I do not believe so far in this evidence that the witness has referred to these as fuel injectors and I think that



1 should be on the record.

2 MR. CHALMERS: I am obliged to you
3 sir and obviously I am leading him through something of
4 which I am relatively ignorant.

5 Q. Is that so?

6 A. When I mention injectors
7 I am using fuel injector.

8 Q. That is what it injects?

9 A. Yes.

10 Q. I recall asking you that
11 question in previous conversations but I have not
12 asked you here. Obviously I didn't know what it
13 injected either.

14 Now, reverting to piston rings and
15 piston lines, have you covered the inspection program
16 for these?

17 A. Yes, I did. That was covered
18 when I explained the second portion.

19 Q. Now can you tell me about air
20 intake filters first of all, and following on Mr.
21 Woodard's question is an air intake filter something
22 like the filter in my car on huge scale, or is it
23 something altogether different?

24 A. That is right. It is very
25 much like the air intake filter on a car.

26 Q. Now, what do you do by way of
27
28
29
30



1 inspection of an air intake filter?

2 A. We use a minometer, an
3 instrument called a minometer that measures the
4 vacuum necessary to pull clean air through that
5 filter into the engine.
6

7 When that vacuum really becomes too
8 high then of course we are starting the engine for
9 combustion and air.

10 Q. Is there a reading, a specific
11 reading upon which it is too high -- 12 inches of
12 vacuum?
13

14 A. Twelve inches of vacuum.

15 Q. Is the reading something that
16 you can take in some manner involving water?

17 A. Twelve inches vacuum at I
18 believe water is about, water column 1 inch repre-
19 sents about half a pound. It would be in the
20 neighbourhood of 6 pounds. Six pounds pressure per
21 square inch.
22

23 Q. And how about --

24 THE CHAIRMAN: Mr. Chalmers, I hate
25 to interrupt you again but normally when you are
26 talking about inches of vacuum you are talking inches
27 of mercury. I wondered if we were talking about water
28 or mercury?
29

30 THE WITNESS: No, I am talking about



1 water in this case.

2 THE CHAIRMAN: Okay, fine.

3 MR. CHALMERS: Q. Now, how about an
4 injection timing. What do you do about that and what
5 are we talking about when you talk about injection
6 timing?

7
8 A. The injection timing controls
9 the fuel injection by the fuel injector into the
10 cylinder, the fuel injector is a plunger type device.
11 It is actuated by a cam and a rocker which depresses
12 the plunger and it is timed so that as the piston
13 reaches dead centre it injects a measured quantity of
14 fuel into the cylinder which is then burned and it
15 produces energy for the downward stroke of the piston.
16

17 Q. And to what extent do you check
18 or inspect or do whatever in your maintenance program?

19 A. These are changed out on an
20 annual basis. We have a system of oil sampling every
21 time a locomotive enters a major terminal a sample of
22 the lube oil is taken and is taken to the laboratory
23 which is right at the shop and it is tested for traces
24 of chrome, lead, fuel oil dilution, presence of carbon
25 in the oil. This gives us an indication of how these
26 fuel injectors are working. If they are not working
27 properly we are getting poor combustion, we are
28 getting contaminants in the oil.
29
30



1 Q. Okay, and once you have done
2 that lube oil analysis, if you are getting contaminants
3 in the oil as a result of that analysis, what do you
4 do?

5 A. We take steps to correct it.
6 If it happens to be, say, a chrome contaminant that
7 could be an indication of liner wear. If it happens
8 to be fuel oil dilution we go to the injectors to
9 find out what injectors are not operating properly.
10

11 Q. If you do find one of them
12 operating not correctly, what do you do?

13 A. It is changed out.

14 Q. You change it out?

15 A. It is replaced.

16 Q. It is replaced?

17 A. By a new one or by a rebuilt
18 one.
19

20 Q. Incidentally, did you say they
21 are automatically changed every ---

22 A. Annually.

23 Q. Annually?

24 A. Every year.

25 Q. That would be every fourth
26 datal?
27

28 A. No, it would be ---

29 Q. Eight?
30



1 A. No, six -- I am sorry, you
2 are right, eight.

3 MR. WOODARD: Every eighth datal?

4 THE WITNESS: Yes.

5 MR. CHALMERS: Q. And how about
6 the rack setting? Would you tell us what that is
7 please?
8

9 A. The rack, the fuel rack
10 setting is what governs the amount of fuel measured,
11 the amount of fuel that is injected into the cyclinder
12 by the fuel injector with each stroke of the plunger
13 of the fuel injector.

14 The rack setting is the control that
15 controls the amount of fuel that is injected.
16

17 Q. And what do you do by way of
18 inspection or automatic replacement or whatever you
19 may do with regard to the rack setting?

20 A. The rack setting is an
21 adjustment. It very rarely comes out adjustment and
22 that is why we very rarely, and that is why we do
23 it on every sixth datal.

24 Q. And if it is out adjustment
25 or otherwise?
26

27 A. We bring it back into adjust-
28 ment.

29 Q. I see.
30



1 At what time, if ever, within the life
2 of the locomotive or within the five year period,
3 does it get replaced?

4 A. It is not necessary to replace.
5 Again, this is just an adjustment.

6 Q. Thank you. Now, in your
7 present capacity and given your background of
8 experience, have you any familiarity with the
9 maintenance system of the Chessie system, the
10 maintenance practice of the Chessie system?

11 A. I'm not really aware of their
12 system although I am fully aware of their system.
13 I do know they have what they call a quarterly system.
14 They call it a Q system and it is much like ours.

15 Q. You said something -- I'm
16 sorry -- you said something that will look a little
17 strange on the record and let me give you an
18 opportunity to clear it up.

19 As I heard you said you are not
20 familiar with the system but you are fully familiar
21 with the system. Well, please slow down and tell the
22 Commissioners and take your time.

23 A. I am not fully aware of their
24 entire maintenance system. I do know a portion of it.

25 Q. Well, you know something about
26 it?
27
28
29
30



1 A. Yes. They perform datal
2 inspections much in the same manner as we do although
3 they call these quarterly or Q inspections. They
4 are carried out every three months. At that time
5 they perform fairly extensive inspections of the unit
6 and repair and renew it if necessary, and on the 30
7 day intervals between those three months they carry
8 out inspections of less intensity and that coincides
9 with ICC -- FRA ---
10

11 Q. The same as the ICC require-
12 ments?

13 A. That is right.

14 Q. The ICC is the Inter-State
15 Commerce Commission?

16 A. Yes.

17 Q. And the FRA is the American
18 Federal body?
19

20 A. Yes. The FRA get a piece of
21 paper to show this monthly inspection.

22 Q. If they are successful?

23 A. No. They have to post what we
24 call a cab card conforming to ICC requirements on
25 the cab of that engine following each of these
26 inspections. They have to be performed on the date
27 required.
28

29 Q. And is there anything that is
30



1 done on a two monthly basis, or have I misconceived
2 this?

3 A. No, no, not on that basis.
4 It is major inspections three months apart and it is
5 quarterly.

6 Q. So, there is two 30 day
7 inspections between that?

8 A. Yes, in which they perform
9 what you might say a minor inspection.

10 MR. WOODARD: Excuse me. Could I
11 clear one point with the witness.

12 Mr. McGown, these cab cards would have
13 to be filled out on the Chessie locomotives. Are
14 they at the behest of ICC, FRA or the DOT?

15 THE WITNESS: It used to be the ICC
16 requirement which I believe is the FRA.

17 MR. WOODARD: That is the Federal
18 Railroad Administration?

19 THE WITNESS: That is right. It is
20 similar to our cab cards only they require them ---

21 MR. WOODARD: Which are presceibed
22 by the Canadian Transport Commission?

23 THE WITNESS: By the CTC, that is
24 right.

25 MR. CHALMERS: Q. And have you any
26 knowledge, at least in a general way, as to what they
27
28
29
30



1 do as a result of their inspections if they find
2 things which are ---

3 A. The Chessie system has a good
4 track record as far as locomotive and maintenance
5 is concerned and I am sure they would follow the same
6 practice we do, if something needs to be replaced it is
7 replaced.
8

9 Locomotive maintenance is very important
10 to us and I would imagine it so to the Chessie
11 system.

12 When you consider you have a locomotive
13 that costs half a million dollars to put out there on
14 the track at present day prices and the cost of cabs,
15 you do not want that unit to have any unnecessary
16 down time. It has got to be operating.
17

18 Q. Are you familiar with the
19 locomotives -- the identity of the locomotives which
20 would ordinarily be used for trains 937 and 942 in
21 the event this Application were successful?

22 A. yes. We would like to commit
23 the 1500 Series class, classification of units
24 generally called GP-30, GP-35 type units.
25

26 They are equipped with a General Motors
27 567D turbo charged engine rated at 2250 horsepower.
28 They are purchased through the years '63, '66.

29 Q. Do the letters and numbers
30



1 GP-30 and GP-35 have any significance in relation to
2 the questions ---

3 A. That is a builder's model
4 designation.

5 Q. Have you any instructions as
6 to the policy Canadian Pacific would follow?
7
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EE-1 1 -- that you would ordinarily, I will instruct you
NGeg 2 that you said 1500 type, is that what you intended
3 to say?

4 A. They are numbered in the
5 1500 series, that's the CPR numbers.

6 Q. Oh, I see.

7 A. I'm sorry, I do stand
8 corrected, the 5500 series.

9 Q. Thanks very much. Now have
10 you any instructions as to the practice Canadian
11 Pacific would follow beyond what you have already
12 told us in regard to assigning these particular
13 locomotives that you have described to 937 and 942,
14 if Canadian Pacific run those trains that Canadian
15 Pacific is applying to run in this application?
16
17

18 A. If it became impossible to
19 supply one of those units through train delays or
20 causing the engines to get out of their cycle or
21 increment weather conditions or any other factors
22 which often prevent the unit from being in the right
23 place where you want it at the right time --
24

25 Q. Before you say what Canadian
26 Pacific would use, what do you mean getting out of
27 their cycle? That may not be self-explanatory,
28 everybody has to read the transcript.

29 A. For instance, suppose we had
30



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(Chalmers)

EE-2 1 two units on trains 937 and 942, and they were
2 operating between Montreal and Windsor. If a snow
3 storm blocked off Montreal, for instance, could
4 delay the return of those units to the service and
5 they would have to supply two more out of Montreal
6 or out of Toronto.

8 Q. That's what you mean by
9 being out of cycle, there isn't one there to keep
10 it going?

11 A. Yes, we very seldom have an
12 engine sitting around waiting to be used.

14 Q. You were about to say, in the
15 event of the sort of thing you have described,
16 winter conditions or whatever, what would you
17 probably use?

18 A. We do not expect these
19 things to happen but if they did happen we would use
20 an SD-40 General Motors turbo charged unit. They
21 were also purchased through the years 1966 and we
22 have several of those around the Toronto area and
23 they are a unit that possibly would be available
24 more likely than some other.

26 Q. What does Canadian Pacific
27 primarily use SD-40's for?

28 A. Generally they are more
29 suited to fast, high speed transcontinental service.
30



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McGown, dr.ex.
(Chalmers)

EE-3

1 That's where we have the majority of them assigned.

2 Q. And they have a horsepower
3 designation analogous to the 2250 --
4

5 A. All of these units are six
6 axle instead of the four axle. They are 3,000
7 horsepower units, they are bigger, heavier. They
8 have greater fuel capacity to go a greater distance.

9 Q. And is there any other
10 substitution, if you like, that Canadian Pacific is
11 likely to consider?
12

13 A. I would say we could have a
14 General Motors, if all failed I am sure that we
15 could find a General Motors unit of a fairly late
16 model.

17 Q. And is there, in that last
18 sentence are you stating any Corporate decision or
19 policy in regard to the limitations of the use of
20 locomotives on this trackage?
21

22 A. I have Corporate instructions
23 to designate the 5500 class units as units for this
24 service, and also in the event of there not being
25 available the efforts that we would make to provide
26 the other units.
27

28 Q. And what fuel would be used
29 on the units hauling 937 and 942 to be operated as
30 we could?



EE-4

1 A. We have a fuel specification,
2 it covers many items of the fuel. And I am not, I
3 cannot state all the items although it's a standard
4 No. 2 diesel fuel with .5% sulphur content
5 maximum, a maximum of .5% sulphur content. And we
6 do not use any additives in our fuel.
7

8 Q. And have you any knowledge,
9 if this service should be instituted and if
10 Chessie is still part, have you any knowledge, and
11 I realize you may not have, as to the unit that
12 Chessie would use or any description in which they
13 may be likely to fall?
14

15 A. I would think Chessie, they
16 have the GP-30-35 unit in this territory and I
17 would imagine they would be using the same units.

18 Q. And have you any Corporate
19 instructions in regard to the policy of Canadian
20 Pacific as to which role it intends to supply to
21 locomotives, what change there might be in their
22 practices?
23

24 A. I understand that we are
25 going to supply the units. I do not know whether
26 that has been negotiated yet but I understand that
27 we are.
28

29 Q. We have instructions to talk
30 out of school, Mr. Chairman. Hopefully Canadian



McGown, dr. ex.
(Chalmers)

EE-5 1 Pacific will supply all the power using only the
2 Canadian Pacific units which the witness has
3 described. I cannot undertake that that is absolutely
4 accurate. That may help.

5 THE CHAIRMAN: Yes.

6 MR. CHALMERS: Q. Now has Canadian
7 Pacific in the last year or so taken any steps in
8 regarding, quite apart from this problem before
9 the Commission today, in regard to shutting down
10 the diesel engines in certain circumstances?

11 A. Yes, this last summer we
12 conducted an experiment of approximately 3 months'
13 duration, and at which time on certain classes of
14 units, primarily the newer higher horsepower units,
15 we had instructions into effect that at any time
16 the unit was sitting idling for more than a period
17 of two hours we would shut the engine down.

18 The final result, sir, is not
19 completely tabulated yet but I did manage to obtain
20 a memo that in the 86-day span we have realized a
21 fuel saving of just slightly over a quarter of a
22 million dollars, that is across the system of course.

23 I am sure that that saving along and
24 the fact that we did not experience too many
25 problems while we were conducting this experiment,
26 this experiment is certainly going to be an
27
28
29
30



EE-6

1 incentive for us to move further in that direction
2 and extend the period possibly six months or more.

3 We considered the shutdown times too.
4 The fuel cycle alone is an incentive for us to do
5 that. And, of course, you realize that when an
6 engine shuts down there is no pollution and there is
7 no noise.
8

9 Q. What was Canadian Pacific
10 concerned with? What was Canadian Pacific's self
11 interest? I think that's clear.

12 A. Well our self interest at
13 that time obviously was fuel saving and energy
14 conservation.
15

16 Q. And what temperatures is
17 this program possible at?

18 A. At the present time we are
19 stating, we are using, the ambient temperature is
20 over 50 degrees Fahrenheit.
21

22 Q. Insofar as you had problems
23 what would those problems revolve around?

24 A. Occasionally we might have
25 a water leak develop due to the engine cooling down.
26 under
27 That's not common/ present day conditions or
28 present day power.

29 Q. Would that happen in two
30 hours?



EE-7

1 A. Not likely, not likely.

2 Rather our concern is every now and again we
3 experience a dead battery and it is difficult to
4 restart the engine again.

5 Q. Do you know how many times
6 that happened during the 86 days?

7 A. No, I do not know, those
8 results have not been tabulated from the system yet.

9 Q. And I do not know whether
10 at this point -- I do not know whether the panel
11 will forgive me, I do not know whether this has
12 any relation at all to the stopping. But I have a
13 note in relation to, if you want to say something
14 in relation to the coldness of water, do you know
15 what on earth that is about?

16 A. The coldness of water?

17 Q. Yes, something to do with
18 a device which secures or diminishes the coldness of
19 water, having something to do with the running of
20 the diesel engine. Is that a piece of nonsense or
21 can you assist me?

22 A. I cannot think of what
23 context that would be in.

24 Q. That's probably a piece of
25 nonsense. Excuse me, sir.

26 I am reminded that this comment, if

27
28
29
30



ANGUS, STONEHOUSE & CO. LTD.
TORONTO, ONTARIO

McGown, dr.ex.
(Chalmers)

1
2 you might wish to say something about the heat in
3 the cab. Does that have to do with the shutting
4 down program, the considerations which go to the --

5 A. Well, if it is cold weather,
6 if it's that cold in the cab, I do not think we will
7 be shutting the engine down. No, I do not think we
8 will be shutting the engine down.
9

10 Q. And you are aware that you
11 will be required to attend for re-examination on
12 approximately the date that you heard the Chairman
13 state a few moments ago, being January 16th, and
14 probably in this auditorium?
15

16 A. Yes, I do.

17 Q. Thank you. Would you answer
18 the questions of the Panel ?

19 THE CHAIRMAN: No questions.

20 MR. CHALMERS: May this witness be
21 excused.

22 THE CHAIRMAN: Yes.

23 --- Witness Withdraws.
24

25 MR. CHALMERS: The next witness is
26 Dr. George Wilson. Do you wish me to proceed?

27 THE CHAIRMAN: Yes, you may continue
28 for a few minutes.

29 MR. CHALMERS: I believe Dr. Wilson
30



E-9

1 will be using the blackboard. I do not propose to
2 make the blackboard an exhibit.

3 DR. GEORGE WILSON, Sworn.

4 THE HEARING PROCESS OFFICER: Will
5 you state your full name, please?
6

7 THE WITNESS: George Paul Wilson,
8 W-i-l-s-o-n, 14 Richelle Court, R-i-c-h-e-l-l-e,
9 Lafayette, California.

10 DIRECTION EXAMINATION BY MR. CHALMERS:

11 Q. Dr. Wilson, you have a
12 Doctorate as a PhD in Mechanical Engineering of the
13 University of California?
14

15 A. That's correct.

16 Q. When did you obtain that?

17 A. In 1963.

18 Q. And you have a BS, Bachelor
19 of Science?

20 A. Bachelor of Science and
21 Master of Science in Mechanical Engineering also.
22

23 Q. From the same institute?

24 A. That's correct.

25 Q. And upon graduation did you
26 work with the Boeing Company in Seattle, the
27 Acoustics Research Group?

28 A. Yes, I worked for about
29 three years for the then Boeing Airplane Company
30



EE-10

1 in Acoustics Research.

2 Q. And following that did you
3 teach at the University of California for six
4 years and your teaching included Architectural
5 Acoustics, Engineering Acoustics and Noise Control,
6 Statics, Dynamics, and Machine Design. Including
7 designing acoustical laboratory facilities,
8 research in physical acoustics and diffraction,
9 designing specialized instrumentation for acoustical
10 measurements, and operation and development of the
11 Acoustics Laboratory.
12

13
14 Did you do those things in six
15 years teaching and research at the University of
16 California?

17 A. Yes sir.

18 Q. And following that have you
19 been in consulting practice?
20

21 A. Yes. I started in acoustical
22 consulting in about 1960 and established my own
23 firm in 1966. And that firm has been specializing
24 in noise and vibration associated with rail systems
25 for the past ten years.

26 Q. Have you been concerned with
27 both noise and vibrations in those studies?
28

29 A. Yes.
30



FF-1 1 Q. And you are a member of
JCeg 2 the Acoustical Society of America, Audio Engineering
3 Society, American Society of Heating, Refrigerating
4 and Air-Conditioning Engineers, Institute of
5 Noise Control Engineering, National Council of
6 Acoustical Consultants?
7

8 A. Yes.

9 Q. And I gather that you have
10 a lengthy list of publications going back to 1965
11 in this field, is that correct?
12

13 A. Yes. The list of
14 publications you have there are primarily associated
15 with rail system noise and vibration problem
16 studies and I am actively involved with about 10
17 or 12 different rapid transit systems in the United
18 States.

19 The Southern Pacific Railroad, the
20 Western Pacific Railroad and also other rail
21 transit systems in other parts of the world such
22 as Hong Kong and Melbourne, Australia.
23

24 Q. And you have done work in
25 conjunction with the Toronto Transit Commission in
26 Toronto as well?
27

28 A. Yes. I have done a
29 considerable quantity of work with the Toronto
30 Transit Commission.



1 Q. And the total number of U.S.
2 Rail Transit Systems you have assisted are how many?

3 A. Ten to twelve.

4 Q. Thank you. Now were you
5 retained by Canadian Pacific to make observations
6 of noise in the area of Powell Sidings and other
7 points in the general area of Windsor or to cause
8 such observations to be made under your direction
9 and supervision so that you could evaluate them
10 and form an opinion on the basis of them?

12 A. Yes I have.

13 Q. And where did you cause such
14 observations to be made and how did you go about
15 it? How did you cause this to be done?

17 A. In order to establish what
18 the noise environment of Windsor is, to characterize
19 it properly with physical measurements and
20 observations in the City, we made noise measurements
21 at five different locations in the City.

22 Residential locations near the
23 Powell Siding, some other residential locations in
24 the City of similar and I guess differing nature
25 just to get an overview of the acoustical or
26 noise environment of the City and to do this the
27 noise measuring apparatus was set up at each
28 location and run for over an hour period in order to
29
30



FF-3

1 get a sufficient measurement of the noise to
2 categorize statistically.

3 Community noise is a constantly
4 fluctuating thing. As road vehicles go by the
5 noise level changes rather rapidly and it is not
6 possible to measure noise as simply as it is to
7 measure temperature which doesn't fluctuate so
8 rapidly so that for a measurement of community
9 noise it is necessary to take a long sample of the
10 noise and then statistically analyze that noise.

11 I have the results of the measurements
12 and I will present them and while I am presenting
13 them I will write them down on the blackboard or
14 chalk board here so that they can be more easily
15 kept in mind than if I just state them in words.

16 The first location that we made
17 measurements was on Byng Road near Memorial Drive.

18 Q. One moment Doctor. Just so
19 that a full disclosure is made to the Committee,
20 when were these measurements made?

21 A. The measurements were done --
22 well, I brought the wrong set of notes. I believe
23 it was March 24th, .977.

24 Q. Fine. Thank you. Would
25 you proceed with your first location, please?

26 A. Yes. Before I proceed with
27
28
29
30



1 the first location let me establish the terminology
2 that I will use for the noise levels.

3 Since the noise does vary with time,
4 it is necessary to talk about the statistics of
5 the noise and I will be talking about the level of
6 noise which is exceeded one percent of the time and
7 that is an approximate measure of the maximum noise
8 levels which occur in an area during some time
9 period.
10

11 The 10 percentile noise level,
12 abbreviated L-10 -- is the noise level which is
13 exceeded 10% of the time and similarly the 50
14 percentile or median noise level is the noise level
15 which is exceeded half the time and the remainder
16 of the time it is quieter.
17

18 To derive a single number which can
19 be used to describe the environment a lot of
20 research has been done on human populations
21 response to noise and a number or a descriptor
22 called the equivalent energy level of the noise is
23 used.
24

25 This amounts to a steady noise level
26 of energy equivalent to the fluctuating noise level
27 and allows the description of the noise environment
28 with a single number like we can describe
29 temperature instead of having a lot of numbers and
30



F-5

1 I will also include that in what I will describe to
2 you that we found.

3 The reason for that is because
4 current legislation and standards that are used
5 for evaluating the acceptability or non-acceptability
6 of community noise are largely based on the concept
7 or the value of the equivalent energy average or
8 equivalent energy average sound level of a
9 fluctuating noise or sound in a community.
10

11 Now the first location on Byng Road
12 near Memorial Drive --

13 Q. This is immediately adjacent -
14 immediately north of Powell Sidings not being in
15 operating when your observations were made, is that
16 right?
17

18 A. That's correct.

19 Q. Before you give that I am
20 remiss, Doctor. I haven't asked you for any
21 general description in words, if you care to make it
22 for the benefit of the Panel, of the community
23 noise environment that one encounters in Windsor as
24 you have observed it visiting here which I take it
25 you have done?
26

27 A. Yes, indeed. The overall
28 environment is that of an urban industrial city. The
29 noise levels that I found are not unusual for such
30



F-6

1 a type of city and they are similar to those found
2 in other urban cities that have a significant degree
3 of industrial activity within their boundaries.

4 Now I will go ahead here with the
5 actual measurements and part of the purpose in
6 presenting these is that later I will indicate noise
7 levels from the diesel engines and I want to be
8 able to conveniently compare noise level numbers
9 with the typical community.
10

11 Q. Would this be a good time --
12 I am sorry. I keep interrupting but would this be
13 a good time for you to describe to the Panel,
14 something in lay terms for the record, how the
15 measurements were made; what sort of equipment was
16 used to make these measurements?
17

18 A. Well, yes. The equipment used
19 to make the measurements is a device, a digital
20 device in this day of electronic marvels to simplify
21 our task greatly is simply a little electronic
22 device that is placed out in the community. It has
23 a sound level meter microphone on it and a digital
24 calculator that is dedicated for one purpose and
25 that is of measuring what we call the A weighted
26 sound level in decibels and then classifying it by
27 percentage of time that the sound level falls
28 within a certain bracket in one decibel increments.
29
30



FF-7

1

2

3

4

5

6

From this classification we can then find out how much of the time the sound level fell within a certain range and what the actual statistics of the noise level at the point of measurement were.

7

8

9

10

11

Q. Well carrying on then with Byng Avenue and Memorial Drive, your location No. 1 and did you confirm that that was adjacent to Powell Siding?

12

13

14

15

16

17

18

19

20

21

22

23

24

25

26

27

28

29

30

A. Yes. Just north of the Powell Siding in front of or between the Powell Siding and the residential area to the north of Powell Siding. I have my map here. Just west of Walker Road. The one percentile noise level at that location was 79 decibels. The 10 percentile was 64. The median sound level was 53 and the energy equivalent sound level was 65 and you will note here that there was obviously a contribution of street traffic to the noise which caused the energy equivalent level to be relatively high because short peaks of sound levels which are more annoying to people than the steady noise do result in an increase in this integrated energy average which is a measure designed to respond to the human perception of sound, varying sounds rather than just the average or sort of simple statistics would.



Wilson, dr.ex.
(Chalmers)

FF-8

1 Q. What time of day were these
2 measurements made in location No. 1?

3 A. This measurement here was
4 between 8 and 9 in the morning.

5 Q. Of what day? Of what day of
6 the week, do you know?

7 A. No.

8 Q. A weekday or weekend?

9 A. It was a weekday.

10 Q. Thank you.

11 A. I should describe another
12 aspect of measurement of community noise and that
13 is that through the five week days the noise levels
14 in communities (and I have made measurements in a
15 large number of communities) for example, for
16 environmental impact assessments for new rail or
17 rail transit facilities, during the day time hours
18 between about 7 o'clock in the morning and 6 or
19 7 o'clock in the evening, the noise levels remain
20 fairly constant or consistent in most communities
21 so that - or a simple sampel of the communities
22 environment such as was done here my measurements
23 are always made during the day time hours between
24 8 o'clock in the morning and 8 o'clock in the
25 evening.

26 - - -
27
28
29
30



EG-1

1

--- ON RESUMING.

PCeg

2

THE CHAIRMAN: Thank you. Please be

3

seated.

4

MR. CHALMERS: Q. You had been

5

referring to five locations, Doctor. You have

6

produced to me and I have produced to you a portion,

7

a small portion of a map of Windsor which has

8

locations 1 to 5 marked in red.

9

10

Is this a map on which you or

11

someone under your control and direction has marked

12

locations No. 1 to 5 now appearing on the blackboard

13

on which you have been talking about?

14

A. Yes, this map shows the

15

locations.

16

17

Q. Now, again, I'm sorry I have

18

one map but we obviously have the requirement for a

19

map. It has been inspected by the member of the

20

public at the counsel table and I would tender it

21

as an exhibit and I am sure we can fairly promptly

22

get copies.

23

24

THE CHAIRMAN: This should be an

25

easy one to produce.

26

THE HEARING PROCESS OFFICER: This

27

shall be Exhibit CP-T.

28

--- EXHIBIT NO. CP-T: Map of Windsor showing
Locations 1 to 5.

29

30



1 Q. Now that the Panel has the
2 exact, the actual exhibit and the reporter has asked,
3 Mr. Chairman, in view that someone besides me has
4 mishaps, that we go back to the beginning of line 2,
5 Kildare and in effect, hopefully repeat the evidence.
6

7 Could you go to location 2, Kildare,
8 which is, by which you will tell us where it is.
9 I believe it is a block north of Somme just below
10 Ypress and halfway between Walker Road and
11 Optomist or Memorial Park.
12

13 A. That is correct. I would
14 also like to correct the date I have.

15 Now, it was March 17, 1977, a
16 Thursday morning. It was sunny and mild with no
17 wind at all on the day of the measurements.

18 At the location No. 2, Kildare
19 Street, which is in the middle of the residential
20 area, north of the Powell Siding and between the
21 Walker Road and the Park, the one percentile noise
22 level was 70; the 10 percentile 65; the 50 percentile
23 47 and the energy equivalent level, 60.
24

25 I see here that we are further
26 removed from the traffic on Walker Road or in a
27 residential area the noise levels are of course
28 somewhat lower.
29
30



1 The third position on South Pacific
2 is south of the Powell Siding near Howard Avenue and
3 this is also a residential area toward the west end
4 of the Powell Sidings.

5 In this case the one percentile level
6 is 72; the 10 percentile 64; the 50 percentile, 53
7 and the energy equivalent level is 60 and we have
8 two residential areas with about the same
9 acoustic environment.
10

11 The fourth position was a location
12 along E.C. Row Avenue between Currie and McKay.
13 This is a location in the residential area near a
14 major traffic arterial or major road and here we
15 see the one percentile level with 82; the 10
16 percentile level, 73; the 50 percentile 62 and the
17 energy equivalent level, 69.
18

19 I would like again to remind you
20 this is a residential area of Windsor.
21

22 The final location, No. 5, is on
23 Riverside Drive at the intersection of Jefferson or
24 Grove, the name of the street changes just before it
25 gets to Riverside Drive. Again this is a residential
26 area of similar type of housing and area to the
27 residential area north of the Powell Sidings but in
28 this case we see the one percentile is 77; the 10
29 percentile 72; the 50 percentile 66 and the
30



1 equivalent level 68. Again the noise level in this
2 area is somewhat high for the particular location
3 that the measurement was made.

4 It was predominantly street traffic
5 noise, however, I did travel the length of Riverside
6 Drive and found other areas with industrial noise
7 creating a similar environment.
8

9 Q. And did you make -- does
10 that complete your evidence on your five measurements
11 in Windsor, Doctor?

12 A. Yes. Except for comments on
13 some of the significance of these.

14 Q. Would you make those
15 comments, please?
16

17 A. One of the factors or
18 measure that have developed out of the current and
19 recent past interest in community noise and the
20 development of community noise legislation has been
21 the development of criteria or standards for
22 residential communities in terms of what is an
23 appropriate noise level for residential communities
24 or what noise level is representative of appropriate
25 or protection for public health and welfare in
26 residential communities.
27

28 As in the United States, the
29 Government of Canada Noise Pollution Control Section
30



1 has adopted the use of 55 decibels a weighted for
2 the day/night energy equivalent sound level and that
3 is approximately equivalent to the day time equivalent
4 level that I have shown here.

5 Similarly, the Ministry of
6 Environment Noise Section for Ontario has adopted 55.

7 I bring that up to point out here
8 that this is -- Windsor does not represent these
9 residential areas which has a noise level that is
10 already higher than that considered to be a quiet
11 residential area by the legislative bodies or their
12 noise sections that have established what represents
13 a residential standard and that is consistent with
14 the nature of Windsor being a more industrial
15 activity type of city with higher noise levels than
16 you find in the more suburban or rural type of
17 residential area.

18 Q. Yes. Well, did you also
19 make measurements of sound in the vicinity of
20 Canadian Pacific equipment in the Canadian Pacific
21 yard in Toronto?

22 A. Yes. To go with the
23 measurements of community knowledge of noise in
24 Windsor measurements were made of Canadian Pacific
25 Railway equipment in a yard in Toronto since it was
26 no long allowed to park them on the Powell Sidings
27
28
29
30



1 and from those measurements I have made an
2 evaluation of what the noise level could be expected
3 to be in the region near the Powell Siding with
4 trains parked and the engines idling and with
5 refrigerator cars, diesel motors running.
6

7 The results indicate of the
8 measurements which I might mention, were very
9 consistent with the noise levels for General Motors
10 turbo charged diesel locomotives ---
11

12 Q. May I interrupt you. First
13 of all, have you heard the evidence of Mr. McGown?

14 A. Yes.

15 Q. And secondly, what locomotives
16 were you basing your observations of three engines
17 idling on?

18 A. Okay. The measurements that
19 I made were on Engine No. 5519 or the measurements
20 that were made under my direction were made on
21 Engine No. 5519 which is an SD-40 which is the
22 largest and most powerful of the engines which I
23 heard the CP commit to use if this service is
24 started.
25

26 Q. Now - well, what were the
27 other two engines?
28

29 A. The GP-30 and the GP-35.
30



1 Q. No, not in Mr. McGown's
2 evidence -- you have a heading on the blackboard
3 "Three Engines Idling" and if I understood you you
4 described on specific ---

5 A. I was describing my
6 measurements. The measurements were made on one
7 SD-40 engine and we have performed the necessary
8 calculations and adjustments to get the noise level
9 for three engines which would be the normal
10 situation at a siding parked train. And I repeat,
11 the measurements were for the largest and noisiest
12 of the three classes or types of engines that would
13 be used in this service.
14

15 Q. Is there any convenient way
16 you can quantify the difference between a 3,000
17 horsepower SD-40 and a 2250 horsepower GP-30 or
18 GP-35 locomotive which in fact would be used on
19 Powell?
20

21 A. Actually they make essentially
22 the same noise level at idle speed. The smaller
23 engine is only one or one and a half decibels
24 quieter than the large one.
25

26 The idle speed noise is largely a
27 function of the actual idle RPM more than the
28 physical size of the engine when comparing something
29 as close together as the 2250 horsepower and the
30



1 3,000 horsepower.

2 Q. I'm sorry, sir. I doubt if
3 the Panel need any expert evidence to tell them
4 there would be no added noise at all if all the
5 engines were turned off but if one of the three is
6 turned off or rather if two of the three are turned
7 off what is the effect?
8

9 A. If two of the three are
10 turned off the noise level would go down about four
11 decibels. If one of the three were turned off it
12 would go down one or two decibels.

13 Q. What is the significance of
14 that number?
15

16 A. Shutting down two of the
17 three engines would be a noticeable change,
18 noticeable reduction in the sound level. Shutting
19 off one would not change it by really a noticeable
20 amount ---

21 Q. I am sorry to interrupt
22 your evidence. Continue.

23 A. The noise levels found for
24 the diesel locomotives operating at idle were in the
25 order of 76/77 DBA at decibels aweighted at 100 feet
26 and 67 to 68 at 300 feet.

27
28 The refrigerator car was a little
29 less than that so I think what I want to address
30



1 primarily from now on is the locomotive. I might
2 also mention there is a small engine in the
3 caboose of the train. We also measured that and
4 it was considerably quieter than the refrigerator
5 car being only 52 to 53 decibels at 100 feet.
6

7 Well, if I may go back to this
8 chart of the community noise ---

9 Q. Before you do that, sir,
10 you used an expression "aweighted". Is that
11 expression -- have you told us what that means and
12 could you do so if you have not?
13

14 A. No, I have not. In
15 addition to being a fluctuating entity community
16 noise contains sounds of all frequencies, very low
17 frequencies and very high frequencies and mid
18 frequencies or pictures of sound, very low pitch,
19 very high pitch or middle pitch and the ear does
20 not respond to all frequencies identically.
21

22 Our ears are very insensitive to
23 low frequencies by comparison to high frequencies
24 so we cannot simply take a sound level meter
25 microphone and go out and measure sound levels and
26 decibels. It has to be aweighted in a manner to
27 correspond to the manner in which the ear hears
28 sound and the scale that I have referred to the
29 "aweighting" or the "DBA" scale is the scale that
30



1 has evolved over the years as being the best
2 correlated through people's response to noise and
3 it is the type of decibel scale that is used in
4 almost all current recent legislation.

5 Q. In your evidence a moment ago,
6 you were kind enough to say if they had to go to
7 SD-40s, Canadian Pacific would use two of them. I
8 take it from your evidence it does not matter. You
9 have said that three SD-40s would produce such and
10 such a noise and if we were two SD-40s -- is three
11 SD-40s you are making -- what is the effect on your
12 evidence about using the noise of three SD-40s
13 which I understand from all of the evidence
14 including yours, to be a hypothetical grouping of
15 engines which not in fact would have been used in
16 Powell siding. I had been informed that trains
17 would normally have three engines.

18 A. Well, I chose to make the
19 estimates based on what I understood would be the
20 worst possible situation of a train parked at the
21 Powell Siding. I had been informed that trains
22 would normally have three engines.
23
24
25
26
27
28
29
30



H.1
G/ko

1 -- and that the large engine that would be used would
2 be the SD-40. I was not aware that if the SD-40 was
3 used they would only need two.

4 Q. Nobody is following you, Doctor
5 but what's the effect on your evidence of presupposing
6 all that power?

7 A. Not a significant effect but it
8 is conservative from the standpoint of the noise
9 level which may be a little lower than I am speaking
10 of.

11 Q. Thank you. I'm sorry, carry
12 on. You are back to the City street location.

13 A. Referring to the locomotive
14 noise at 300 feet, which is a typical location for
15 the residential dwellings to the north of, the nearest
16 residential buildings to the north of the Powell
17 Siding. The same level from the diesel locomotives
18 would be about 67, 68 DBA. You see that is noise
19 level which is comparable to or lower than the
20 maximum noise levels which were found at any of the
21 locations and in the community. It is in fact not
22 much higher than the energy equivalent sound level
23 which would represent, if the engines ran there all
24 day creating a steady noise they would create the
25 energy equivalent level in the same range as the
26 street traffic at the E. C. Row and Riverside
27
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HH 2

1 locations do.

2 If we convert this locomotive noise
3 now to a reasonable time period, say like the 25 to
4 30 minutes minimum which was referred to, or even
5 to one hour per day or two hours per day, I can
6 indicate an energy equivalent or a community noise
7 equivalent level for the locomotives.
8

9 This would be in the order of 53 to
10 54 for the 25 to 30 minute exposure per day, assuming
11 a 12 hour day period, from 7 o'clock in the morning
12 until 7 o'clock in the evening.
13

14 Now for the one hour period this would
15 be 50 to 55 for a two hour period. Excuse me, I have
16 got the wrong figures. For the one hour period it
17 would be 56 to 57; and for the two hour period it
18 would be 59 to 60, for the locomotive energy
19 equivalent sound level.
20

21 You see that even up to about two
22 hours per day the noise exposure from the locomotives
23 is similar to what is already being experienced in
24 the community from other sound sources. Now that's
25 not to say that this noise would not be heard or does
26 not add to the environment, but that it is of a
27 similar level and exposure to that which already
28 exists in the residential areas due to other sources.
29 And in fact under some forms of evaluation it is
30



1 somewhat less than the noise level experienced by
2 the residents in other areas of the community or
3 even in the area near the Powell Siding.

4 MR. WOODARD: Dr. Wilson you testified
5 that at Byng Avenue, for example, your energy
6 equivalent was 65.

7 THE WITNESS: Yes.

8 MR. WOODARD: That, as I understand
9 it, is very close to one end of the Powell Siding,
10 the east end of the Powell Siding.

11 THE WITNESS: Two blocks from the
12 end, the east end, yes. That's in the area where the
13 engines would park.

14 MR. WOODARD: If you do have diesel
15 locomotives idling for two hours, would the energy
16 equivalent for 59 to 60, would that have any
17 cumulative effect on the already existing 65 energy
18 equivalent?

19 THE WITNESS: Yes, it would make it
20 about 66. A more graphic one would be here, take one
21 that's 60. The two 60's would add up to 63, which
22 is a noticeable increase but not a significant
23 increase.

24 MR. CHALMERS: Q. Could you explain,
25 I am glad Commissioner Woodard asked that question.
26 Could you explain how 60 and 60 make 63 in your field?
27
28
29
30



1 A. Yes. The decibel scale is a
2 difficult scale to say the least. When you have two
3 equal noises, say like a 60 and 60, they add up on
4 the logarithmic scale to give you 63.

5 If the numbers are 10 apart, say like
6 60 and 50, they add up to 60. By the time you get
7 10 decibels difference the new one does not add any-
8 thing to the higher one. At 5 decibels apart the
9 sum is about 1 decibel higher. So if you add 65
10 and 60 that would come out to 66. The decibel scale
11 is sort of like a 26% interest scale compounded.
12 One decibel is the ratio of 1.26; and two are a
13 ratio of 1.54 and so on, compounding 26%.

14 THE CHAIRMAN: In layman's terms I
15 guess what you are telling us is that the loudest
16 noise is loud enough so that you do not hear the
17 less loud noise?

18 THE WITNESS: That's correct. Now
19 in terms of, what does it take to make a difference
20 to the human perception of sound, a noise of 60
21 decibels sounds about twice as loud as the noise of
22 50. And the noise of 60 is noticeably louder than
23 one of 55. But the difference between, say, 60 and
24 62, most people could never tell the difference.
25 Two or three decibels is really a small change. Five
26 decibels is significant in terms of community noise,
27
28
29
30



1 ten decibels is twice as loud. Twenty decibels is
2 four times as loud. That's one of the difficult
3 things about the decibel scale, it is not very well
4 related to the loudness in terms of simple factors
5 like twice or half as loud.
6

7 Any other questions?

8 MR. WOODARD: Thank you, thank you.

2 9 MR. CHALMERS: Q. Coming back to
10 show the total impact of the idling trains on the
11 existing residential and traffic related noise in
12 Windsor --
13

14 A. That's correct.

15 Q. And --

16 A. I could also indicate what
17 the locomotive noise is in terms of the day-night
18 sound level or the day-night equivalent sound level
19 that actually appears in the Legislation which takes
20 into account the whole 24 hour day. That would simply
21 be reducing these numbers by about three, that is the
22 numbers that I gave earlier for the equivalent sound
23 level for the 25 to 30 minute period, the one hour
24 period, the two hour period should be reduced ,
25 about three decibels to convert the locomotive idling
26 noise to a 24 hour day-night equivalent noise exposure
27 as it is found in the Legislation and as is currently
28 considered to be the best measure and most reasonable
29
30



1 measure of community noise.

2 Q. Now you may have answered this,
3 Doctor, but what's your opinion on the basis of your
4 experience and your knowledge of the prevailing
5 standards including those on which you have already
6 touched, as to the acceptability or unacceptability
7 of the level of noise represented in this environment
8 by your observed noise at five locations plus your
9 rather conservatively observed noise of 3,000 horse-
10 power locomotives at 300 feet?
11

12 A. Well my opinion is that it
13 does not represent a quiet residential area but it
14 does represent the noise environment that is
15 consistent with the Windsor area. And the noise
16 from the locomotives added to the existing community
17 noise is not out of character with the area.
18

19 Q. And you have qualifications
20 in regard to vibrations. Would you expect there to
21 be vibrations from the total noise level, the total
22 noise impact that you have measured, the three SD-40's
23 plus the existing community noise?
24

25 A. There is sufficient low
26 frequency noise energy or sound pressure level from
27 the idling diesel engines to create, in some cases,
28 noticeable or perceptible vibrations of wall panels
29 of wood frame or light frame houses.
30



1 The vibration does not transmit through
2 the ground. There is insufficient vibration energy
3 and idling stationary diesel locomotive to transmit
4 ground vibrations that would be perceptible or create
5 any perception of that vibration in buildings 50 or
6 100 feet or more from the track.

7 However, the low frequency noise due
8 to the exhaust pulsation of the idling engine is
9 sufficient that with some houses, particularly light
10 frame houses, there can be vibrations due to the
11 acoustic excitation or the acoustic force that that
12 low frequency noise generates on the building.

13 Q. Now is there anything that
14 Canadian Pacific can do about that type of noise
15 from the exhaust that causes the vibrations of the
16 houses?
17

18 A. There are two things, one the
19 engines can be shut down as we mentioned earlier.
20 Secondly, it is possible to muffle the engines or
21 to use a lower idling speed than the standardized
22 speed to reduce the noise somewhat.
23

24 I think that the likely thing that
25 will happen is that eventually the new engines will
26 have mufflers because of legislation that's in
27 progress in the United States and has been adopted
28 here, as far as I know, that does require engines
29
30



1 manufactured after 1979 to produce a lower noise
2 level than current engines do.

3 Q. What are the prospects for
4 improvement or worsening of this vibration?

5 A. Well, I think the best
6 prospect for reducing the vibration if it does occur,
7 is that of shutting the engine down or keeping the
8 exposure short.
9

10 I think that the vibration that I
11 have heard people talk about has been present all the
12 time. It is simply that in the last two years,
13 because of events that have happened, the community
14 residents have been sensitized to the noise and
15 vibration from the railroad operations. And this has
16 made a part of the environment which was previously
17 accepted and not noticed, very noticeable because of
18 sensitization to the specific noise source.
19

20 Q. Are you aware, Doctor, that
21 you are required to re-attend? In your case I
22 respectfully suggest to you, sir, it is part of the
23 contractual agreement with Canadian Pacific that you
24 re-attend on the date mentioned by the Chairman,
25 January 16th next?
26

27 A. Yes I am.

28 Q. Or on such date as may be
29 necessary. Thank you.
30



1 A. Thank you.

2 MR. CHALMERS: May this witness be
3 excused to return to Los Angeles at this time, or
4 go on about his business wherever it may be?

5 THE WITNESS: San Francisco.

6 MR. CHALMERS: Excuse me. You can
7 tell me I come from Montreal.
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1 MR. CHALMERS: Mr. Hugh A. Williams.

2 HUGH A. WILLIAMS, JR., Sworn

3 THE HEARING PROCESS OFFICER: Would
4 you state your full name and spell your last name for
5 the record, please?

6
7 THE WITNESS: My full name is Hugh
8 F. Alexander Williams, Jr.

9 THE HEARING PROCESS OFFICER: And
10 your address, please?

11 THE WITNESS: And my address is 1119
12 Blanchard Street, Downersville, Illinois.

13 DIRECT EXAMINATION BY MR. CHALMERS:

14
15 Q. Mr. Williams, are you Supervisor,
16 Product Development, Electro-Motive Division, General
17 Motors Corporation, La Grange, Illinois?

18 A. I am one of five supervisors
19 in the Engine Design Section, that's correct.

20 Q. And I understand that you have
21 27 years of experience in the field of diesel engines,
22 is that correct?

23
24 A. That's correct.

25 Q. And you have a Bachelor of
26 Mechanical Engineering Degree obtained in 1948 and
27 a Master of Science and Diesel Engineering obtained
28 in 1950 at North Carolina State University at
29 Raleigh, North Carolina; is that correct?
30



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A. That's correct, sir.

Q. And does that 27 years commence with two years experience in diesel locomotive field service?

A. Yes.

Q. And is it all with General Motors?

A. No. That was with the then Lima-Hamilton Corporation and later with Baldwin-Lima-Hamilton Corporation.

Q. And is that period of two years followed by some three years in design and development of supercharged four cycle diesel engines and free-piston gasifier components still with Baldwin, Lima and Hamilton?

A. It was.

Q. And then for the following 22 years have you been with General Motors?

A. I have.

Q. And your experience there has been in the design and development of EMD Model 567 and 645 two-stroke cycle diesel engine components, including unit fuel injectors, heavy fuel and dual fuel engine combustion and controls, combustion chamber, cylinder liner design as related to engine performance, and exhaust remission reduction --



Williams, dr.ex.
(Chalmers)

3 1 Electro-Motive Division of General Motors Corporation?

2 A. Yes.

3 Q. Is that accurate?

4 A. Yes.

5 Q. And you are a member of the
6 American Society of Mechanical Engineers, Society of
7 Automotive Engineers and a Registered Professional
8 Engineer in the State of Illinois?
9

10 A. That's right.

11 Q. Those three things?

12 A. Yes.

13 Q. And you have a number of
14 publications, all in relation to aspects of diesel
15 engines going back to 1950. Is that correct?
16

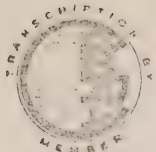
17 A. That's correct.

18 Q. You lecture and advise and
19 talk as well today as well as design and work with
20 diesel engines. Is this an accurate description?
21

22 A. Yes.

23 Q. In your own words, what are
24 your present concerns with diesel engines?

25 A. My present concerns are in the
26 area of fuel specifications, lubricating oil specifi-
27 cations and end product performance and the latter
28 includes fuel consumption, gaseous exhaust emissions
29 as well as visible gaseous emissions.
30



Williams, dr.ex.
(Chalmers)

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Q. Yes. Have you heard the evidence of Mr. McGown?

A. Yes I have.

Q. And do you have any knowledge in your capacity of the diesel engine maintenance system of the Chessie system?

A. Well --

Q. I don't want to take you beyond your actual knowledge.

A. Not directly, meaning that I don't have the firsthand personal experience.

Q. Do you have any knowledge of the reputation of your industry or your business?

A. I do have that information.

Q. What's that?

A. That the Chessie system has a very good reputation for maintaining its locomotive power.

Q. Now in relation first of all to odors, what have you to say as to the problems likely to be encountered with odors from the diesel engines described by Mr. McGown used and maintained in the manner he described?

A. Used and maintained in the manner in which Mr. McGown described -- I would not expect an odor problem to arise and I would quality



Williams, dr.ex.
(Chalmers)

II 5 1 that by saying that the only time that I would expect
2 an odor problem to occur with our engines (and this
3 is not peculiar to our engines but peculiar to diesel
4 engines generally) is during the start-up period when
5 the engine is cold prior to or during the warming up
6 period when it is coming to temperature.
7

8 During that time because of the cold
9 services of the combustion chamber in an engine (and
10 I mean this for engines generally), you are apt to see
11 what amounts to white smoke or a pale blue smoke being
12 generated and this represents, in large part,
13 condensate which has formed in the combustion chamber
14 and appearing in the exhaust.
15

16 Q. Does that condensate have an
17 odor?

18 A. Yes I think so. I think each
19 engine has its own characteristic odor during a warming
20 period.
21

22 Q. Does an engine that is shut
23 down for two hours -- (a) two hours or (b) four hours,
24 of the sort described by Mr. McGown, shut down for
25 (a) two hours or (b) four hours, get cold enough to
26 have the phenomenon you described with the smoke and
27 the odor?
28

29 A. Well --

30 Q. At start up?



Williams, dr.ex.
(Chalmers)

11 6

1 A. Well I think you have asked
2 me two questions.

3 Q. I have.

4 A. (a) four hours and (b) two
5 hours. Certainly the ambient temperature in which
6 this shutdown would occur could have a primary effect
7 upon how cold the engine gets in that span of time.
8

9 Q. Given the evidence of Mr.
10 McGown that it would be, I believe, about 50 degrees
11 Fahrenheit. Was that his evidence -- or higher?

12 A. 50 degrees or higher?

13 MR. WOODARD: At a minimum of 50
14 degrees.
15

16 MR. CHALMERS: Thank you.

17 THE WITNESS: And you would like to
18 know, whether or not, in my opinion whether there
19 would be a problem created upon start-up?

20 MR. CHALMERS: Q. Yes.

21 A. In my opinion, no. I would
22 mention further that the diesel engines used in the
23 locomotives that we produce weigh on the order of
24 one ton per cylinder, so if you are talking in terms
25 of the GP-30 or GP-35 or the SD-40 even, you are
26 talking about 16 cylinder engines and they weigh
27 16 tons or a little bit more, a few pounds more
28 plus the fact that the lubricating oil and the
29
30



II 7 1 cooling water in these engines -- both of them have
2 mass and add to the total weight.

3 The engine is contained in a car body
4 rather than be directly exposed to wind velocity
5 directed for example in a high wind. All of these I
6 think would serve to cause the temperature of the
7 engine to drop very slowly after the engine is shut
8 down.
9

10 In other words the engine would tend
11 to remain to retain a lot of the heat within it and
12 you would not have what would really be called "a
13 cold start" following such a shutdown period in these
14 ambient temperatures.
15

2 16 Q. Is your answer the same or
17 different for the two shutdown periods I mentioned
18 of two hours or four hours?

19 A. Well the four hour period
20 would cause the engine to cool just a little bit more
21 but I don't think that we are talking about anything
22 markedly different in the way of temperatures.
23

24 Q. Now how about the problem, if
25 there were one, of soot in the circumstances of the
26 engines described by Mr. McGown and -- did you hear
27 any or all of the evidence of Mr. Nutkins?

28 A. I came after he had began his
29 statements yesterday morning. I did not hear his
30



Williams, dr.ex.
(Chalmers)

II 8 1 comments in their entirety.

2 Q. Yes, but given such the
3 evidence you heard from those two witnesses as to
4 the running of the Powell Sidings by Canadian Pacific
5 and the engines that would be run by Canadian Pacific,
6 particularly Mr. McGown, would you anticipate a
7 problem with soot?
8

9 A. I would not anticipate a
10 problem with soot.

11 Q. Why not?

12 A. From the statements which have
13 been made, primarily by Mr. McGown, with respect to
14 the mechanical maintenance and the attention received
15 by the locomotives in his care and the railroad's
16 care in addition to the reputation of CP Rail as well
17 as the Chessie system for maintaining locomotive
18 power, I would not expect soot per se to be a problem.
19

20 In addition, one other factor which
21 was brought out by Mr. McGown is one which has a
22 primary bearing upon the engines visible or -- say
23 visible exhaust emissions.
24

25 For example, both the Chessie system
26 units and the CP Rail units are equipped with low
27 sac fuel injectors and from our own experience in
28 the development of this injector we have determined
29 that it has a very pronounced effect upon the amount
30



Williams, dr.ex.
(Chalmers)

II 9 1 of visible smoke or free carbon or soot, however you
2 wish to express it, generated by these engines at
3 full load.

4 Q. Now is your answer affected by
5 assuming the fact that the first move made by the
6 engine would be at a speed not exceeding 15 miles
7 per hour for some short distance?
8

9 A. Would you please ask that
10 again?

11 Q. Yes. Would you answer be
12 affected by assuming the fact that the train and
13 the engine will have its movement restricted not to
14 exceed 15 miles per hour for the first period of time
15 that it is going to move?
16

17 A. Well ---

18 Q. In its initial movement?

19 A. In the normal operation of a
20 locomotive I would say I would expect no problem.

21 However, it is possible, due to the
22 manner in which one can operate a locomotive, if he
23 aspires to do it, conceivably an engineman could
24 begin the train movement by opening the throttle up
25 necessarily to a higher speed than required to move
26 the train. You might get into, in doing so, some
27 wheel slips.
28

29 Q. How -- go ahead?
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A. This, in turn, would cause

engine speed to cycle. First from a higher speed to
a lower speed then back again.

Q. How should the engineman handle
the throttle in order to avoid the problem of soot as
I have called it?

A. Well the manner in which I
was just describing for operating locomotives would
not be responsible operation in my opinion.

Q. I see.

A. You asked me earlier what
could occur and I was attempting to respond to that.

Q. Thank you.

A. And in normal operation there
would be no cause for such mishandling of a
locomotive throttle to occur and with normal
operation of a throttle engine speed is maintained
to increase train movement within the limits of
wheel to rail adhesion. I would expect no problem
at all with soot.

Q. I see.

A. In the normal operation.

Q. In the business in which
Canadian Pacific is in and in the business which
General Motor Diesel is in, is there a word for the
type of action required to obtain the handling of a



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Williams, dr.ex.
(Chalmers)

II 11 1 throttle in the manner you have described as
2 desirable to avoid soot?

3 A. Is there a word --

4 Q. Well I mustn't cross-examine
5 you, but you have given evidence that it is helpful
6 in avoiding soot, the word I used (and you made your
7 own definition), you handle the throttle in a
8 particular way. How does a railroad in your
9 experience obtain that proper handling of a throttle
10 to avoid, amongst other things, perhaps excessive
11 smoke or soot?
12

13 A. Well I would think that in an
14 attempt to give you a brief answer you would have all
15 of your locomotive operating crews instructed in the
16 correct or acceptable method in which a locomotive
17 should be operated. In a normal routine fashion on
18 a day-to-day basis there would be a member of
19 management who would supervise or at least monitor
20 the actual operation of the locomotive to determine
21 whether or not these instructions were being complied
22 with.
23
24

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Williams, dr.ex.
(Chalmers)

JJ-1 1

Q. Thank you.

PCeg 2

COMMISSIONER WOODARD: But just a minute, Mr. Chalmers. There is something here that is a little bit hazy and I think it should be cleared up.

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Would you not agree, Mr. Williams, your actual locomotive speed and train speed have little to do with your engine speed in that you could be, well, to put it in railroading terms, you could be operating your unit at throttle and still only be moving five miles an hour?

THE WITNESS: That is correct.

COMMISSIONER WOODARD: And you are lifting your yard train and accelerating it?

THE WITNESS: That is correct.

COMMISSIONER WOODARD: There is no way you can really relate train speed to the amount of engine speed and possible emission?

THE WITNESS: Well, what I was trying to do earlier, Mr. Woodard, was to indicate an irresponsible method of operating locomotives.

COMMISSIONER WOODARD: Yes.

THE WITNESS: In the normal fashion the routine day to day operations of a locomotive I do not think that would be normally the thing which would occur and I think if just routine



1
JJ-22 operations, and I use the word "normal" or
3 acceptable level of operation were maintained by a
4 railroad that you would not have a problem of
5 excessive wheel slips or engine speed cycling up
6 and down in an attempt to begin the movement of
7 the trains by locomotive.
8

9 MR. CHALMERS: Yes, Commissioner, I
10 think it is I who talked about 15 miles per hour.

11 COMMISSIONER WOODARD: That was
12 the reason I raised it again.

13 MR. CHALMERS: I am most grateful.
14 You talked about wheel slips. Would
15 you say, very briefly, what you mean by that
16 expression for the record?
17

18 A. What I mean by a wheel slip
19 is the loss of adhesion between the wheel and the
20 rail as torque is applied to the wheel through the
21 traction motor depending on the gear assembly, in
22 an attempt to turn the wheel and maintain adhesion.
23

24 When adhesion is lost then the
25 wheel will spin faster than normal and this is
26 readily apparent and the locomotives are equipped
27 with control systems to detect wheel slip and to
28 reduce the demand made on the engine locomotive to
29 move it forward. When this is done then the torque
30



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Williams, dr.ex.
(Chalmers)

JJ-3

1 applied through the motor to the wheel and
2 subsequently to the rail, is reduced and the
3 traction is again restored wherein the wheel does
4 not slip.

5 Q. Yes. Was there some change
6 in the state of your yard in relation to diesel
7 locomotives that were introduced in 1972, which
8 affects this matter of soot and smoke?
9

10 A. Yes. In 1972, the
11 Locomotive Division of the General Motors began a
12 program aimed at the reduction of exhaust smoke
13 as well as gaseous emissions and in addition the
14 improvement in fuel consumption or fuel efficiency
15 of our diesel locomotives which we produce and
16 that program has yielded significant improvements
17 and among these improvements is the very pronounced
18 reduction in visible smoke which I hope responds
19 to your question.
20

21 Q. Well, yes. Are these
22 improvements improvements in parts or in total
23 engines produced or both?
24

25 A. Well ---

26 Q. In other words, you heard the
27 evidence of Mr. McGown about how Canadian Pacific
28 changes out, to use his terminology, parts and
29 replaces them with current or rebuilt parts. If
30



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Williams, dr.ex.
(Chalmers)

JJ-4

1 that is done in the way described by Mr. McGown,
2 or are the benefit of these changes generally
3 speaking obtained or is the position rather
4 different from that ---

5
6 A. I believe I can respond to
7 your question by saying that there were several
8 components of the diesel engine that are involved
9 in producing these improvements, namely, the fuel
10 injector spray tip, the piston relative to its
11 top compression rate position, the cylinder liner
12 relative to its torque wherein that torque would ---

13
14 To continue, these components were
15 revised and they may be applied to existing engines
16 as well as to the new engines which are produced
17 and by so doing refitting an older engine can bring
18 it to a level of performance similar to or identical
19 with a new engine.

20
21 Q. And given the evidence of Mr.
22 McGown, where does Canadian Pacific appear to stand
23 in that regard?

24 A. Primarily Canadian Pacific
25 from Mr. McGown's testimony which I heard has the
26 low sac spray tip as a regular component in the
27 engine switch it operates in locomotives and
28 cylinder liners and pistons may or may not be of
29 prime advantage but I would hasten to add the
30



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TORONTO, ONTARIO (Chalmers)

JJ-5 1 injector has the overshadowing effect. The
2 injector emission, that is, insofar as producing
3 low visible exhaust smoke.

4 Q. Thank you. And how about -
5 first of all I used the word "soot". You used some
6 other words. And we have drifted into talking
7 about smoke. Is there anything -- does the use of
8 the word "smoke" introduce anything different or
9 is that what we have been talking about all along?
10

11 A. I think we are talking about
12 the same subject. It is a subjective subject. I
13 do not over work the word.

14 You're talking about soot and soot
15 I expect to be defined as carbon, free carbon
16 in particular, and much of the smoke which we
17 observed visually is actually small fine carbon
18 particles entrained in the exhaust gas stream.
19

20 Q. Now how about white smoke.
21 What is that and is there likely to be a problem
22 with that in the operation given the equipment
23 described by Mr. McGown and the program of
24 maintenance as described by him?
25

26 A. I would expect to see white
27 smoke produced by locomotives only during the
28 starting up, warming up period.

29 Q. What is it?
30



JJ-6

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A. Condensed moisture, condensed fuel particles. They are very opaque but white as opposed to dark soot or carbon. They primarily are produced by the quenching effect of combustion which has been interrupted by the cool surfaces of a combustion chamber.

Q. Is there anything abnormal about that?

A. I would not say it is abnormal at all. I am saying it is encountered in a compression ignition engine such as the diesel engine during a warm up period prior to the time that it has been brought to normal operating temperatures.

It is a matter of a degree as far as the amount of smoke produced. There are a lot of factors which influence this and yet it is something routine during the warming up period of a diesel engine.

Q. What kind of moisture is it? Is it water or some poisonous chemical?

A. Well, I have not performed any chemical analyses. On the other hand, it occurs very broadly in the many years that diesel engines have been operated. I have not seen or am I aware of restrictions being placed upon engines which

Williams, dr. ex.
(Chalmers)

JJ-7 1 would indicate that the effects of such warming up
2 and the effects of such condensate production would
3 be materially harmful.
4

Q. Thank you. And have you any
5 opinion about the effect of the operation described
6 by Mr. McGown on trees in the immediate neighbourhood
7 of the railway right-of-way of a siding operation
8 where there were engines stopped and possibly
9 stopped, certainly stopped in terms of movement and
10 possibly shut down or restarted?
11

A. You're asking me if I know
12 of known effects diesel engine exhaust gas upon
13 trees or tree foliage?
14
15

Q. Yes.

A. My response is I do not.
17
18 I am aware of the effects which have been produced
19 by spark-ignited gasoline engines. In this regard
20 I have seen some evidence of this but I have no
21 knowledge nor have I seen any evidence of such
22 damage known to have been produced by a diesel
23 engine.
24

Q. And have you any knowledge
25 in regard to the pollutant emissions from the type
26 of engine described by Mr. McGown, given the standard
27 of maintenance also described by him?
28

A. Yes, I have knowledge of
29
30



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Williams, dr. ex.
(Chalmers)

JJ-8 1 the level of pollutants.

2 Q. Would you describe that?

3 A. With respect to what, Mr.
4 Chalmers?

5 Q. With respect to whether it's
6 objectionable or not. What are its dimensions?

7 A. When you asked me whether or
8 not it was objectionable my response to you is that
9 there are no existing regulations in the United
10 States on gaseous emissions from locomotives.

12 There are, however, many, many
13 smoke ordinances and regulations around the United
14 States and the world which are either state or
15 local or air pollution control district or hamlet
16 or city or village produced.

18 Q. How would you describe the
19 quantity, if any, of pollutant emissions from the
20 locomotive that Mr. McGown described, given the
21 program of maintenance he described?

22 A. I will preface my remarks by
23 saying there are three basic, four basic emissions
24 that are currently measured on diesel and gasoline
25 engines within the federal regulations that exist
26 in the United States and that is hydrocarbons --
27 excuse me -- they are: hydrocarbons, carbon-monoxide,
28 oxides of nitrogen and physical smoke.
29
30



Williams, dr. ex.
(Chalmers)

JJ-9

1 These four emissions are currently
2 regulated by the U.S. Environmental Protection
3 Agency for heavy duty trucks and heavy duty
4 gasoline -- heavy duty diesel engines and heavy
5 duty gasoline engines. There are no existing
6 regulations nor are there a counterpart for these
7 regulations insofar as locomotive engines are
8 concerned.
9

10 Q. Do you know why not?

11 A. Because on the basis of the
12 E.P.A. evaluation to date, locomotive engines
13 contribution to total emissions produced by various
14 sources is obviously known to be very low. For
15 this reason they have had a priority basis on which
16 they have sought to reduce emission levels of
17 various sources, both stationery and mobile and the
18 diesel engine becomes, in their judgment, low
19 priority and has received less the immediate
20 attention given to other sources.
21

22 If I may, I would like to state
23 further I am speaking of engines in the size range
24 of locomotives, diesel engines, because the truck
25 diesel is regulated.
26

27 Q. Thank you. Now, it may sound
28 like a silly question but I would like to ask you
29 whether or not running the engine to the point --
30



Williams, dr.ex.
(Chalmers)

JJ-10 1 what does it involve starting the engine again and
2 shutting the engine down for a period of time and
3 starting it again is of assistance in regard to the
4 factors that have been put to you. Smell and soot
5 or smoke and pollutant emissions -- shutting the
6 engine down, is that of any real help?

7 A. Well, I certainly concur in
8 the comments made by both Mr. McGown and Dr.
9 Wilson. I believe firmly that if you can shut the
10 engine down you remove the source of the noise, the
11 source of pollution and the source of vibration.
12

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Q. Is there a problem in that you lose something again or do you, when you start the engine again? Would you cover that please if there is a problem or not, you lose some of what you gain and if so how much?

A. The answer to your question specifically is that I am sure in some instances there is a loss of what you gain depending on the time in which the engine shuts down.

On the other hand I would suggest that the gains that are going to outweigh the losses here in the long run and in search of lower exhaust emissions, lower noises in our communities and in search of fuel savings and certainly the economy that accompanies fuel savings, it is my opinion that shutting an engine down in ambient temperatures of 50 degrees or above would be a means of deriving all of these benefits with none of the disadvantages period.

Q. And you are aware, are you, that it's the wish of Canadian Pacific who requested you to be here today to give evidence, that you attend, come up from the United States and attend again on the 16th of January to submit to cross-examination.

Will you do that sir?



KK 2

1 A. Yes I will.

2 Q. Much obliged. I should add
3 that it is the wish of this Commission, but any
4 influence that Canadian Pacific has in that regard
5 to make you available for whoever may be cross-
6 examining you is at the disposal of the Commission.

7 May this witness now be excused
8 unless the Commission has further questions for him.

9 THE CHAIRMAN: No questions.

10 MR. CHALMERS: May this witness be
11 excused to return to the United States or to go about
12 his business?
13

14 THE CHAIRMAN: He is excused.

15 MR. CHALMERS: Thank you very much
16 sir.

17 THE WITNESS: Thank you gentlemen.

18 MR. CHALMERS: Now it is now three
19 minutes to five, and we are now in a position where
20 we have, I think at the Toronto Airport, the next
21 witness, the engineer that you requested in regard
22 to the state of the Powell Sidings. And on balance
23 may it please the Commission we would rather like to
24 call him. I am in your hands, I am not asking you
25 to stay here --

26 THE CHAIRMAN: That you would like
27 to call him tomorrow morning, is that what you are
28

29
30



KK 3

1 suggesting?

2 MR. CHALMERS: Yes sir. I am sure
3 we would all like to be out of Windsor but you have
4 raised a real problem and I would like to call him.

5 THE CHAIRMAN: Has he taken off yet?

6 MR. CHALMERS: No, no we have got
7 arrangements to page him and he is -- take this off
8 the record.

9 --- Off record discussion

10
11 THE CHAIRMAN: Mr. Chalmers we have
12 had alittle consultation here and I think the
13 consensus of us Commissioners is that we would be
14 quite prepared to have him as the first witness on
15 the 16th.

16
17 MR. CHALMERS: Well, he would be the
18 first witness on the 16th, yes sir.

19 THE CHAIRMAN: All right, the hearing
20 will now adjourn until January the 16th at 10:00
21 a.m.

22 --- WHEREUPON THE HEARING WAS ADJOURNED UNTIL 10:00
23 A.M. ON THE 16TH DAY OF JANUARY, 1978.

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